Master Municipal Construction Documents 2019 Edition

# REQUEST FOR TENDER

## Ootischenia Landfill Transfer Station Upgrades

Reference No. PRJ26002

Unit Price Contract

Issue Date: October 30, 2026

Issued By: Regional District of Central Kootenay

Owner: Regional District of Central Kootenay
Contract: Ootischenia Landfill Transfer Station Upgrades
Reference No. PRJ26002

**The Owner invites Tenders for:** Construction of an upgraded Transfer Station facility at the Ootischenia Landfill, including a new z-wall, infiltration pond, frontage road, operational area and 80ft scale.

**The Contract Documents are available online through the following platforms:**

BC Bid Tendering Website: http://www.bcbid.gov.bc.ca/
RDCK Website: https://www.rdck.ca/corporate/bids-tenders/

It is the Tenderer's sole responsibility to check for and obtain any addenda issued prior to the closure of the tender period.

**Tenders are scheduled to close as follows:**

Deadline for Questions: November 23, 2026 @ 10:00 AM local time
Last Date to Issue Addenda: November 24, 2026
Tender Closing Date: November 30, 2026 @ 2:00 PM local time
Submission Requirements: Email submission to tenders@rdck.bc.ca and CC: aevenson@rdck.bc.ca

**Name of Owner's Representative:** AJ Evenson

Senior Project Manager
Phone: 250-551-0774
Email: AEvenson@rdck.bc.ca

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**TO BE READ WITH 'INSTRUCTIONS TO TENDERERS – PART II'
CONTAINED IN THE EDITION OF THE PUBLICATION
"MASTER MUNICIPAL CONSTRUCTION DOCUMENTS" SPECIFIED IN ARTICLE 2.2 BELOW**

**Owner:** Regional District of Central Kootenay
**Contract:** Ootischenia Landfill Transfer Station Upgrades
**Reference No.** PRJ26002

**1.0 Introduction**

1.1 These Instructions apply to and govern the preparation of tenders for this *Contract*. The *Contract* is generally for the following work:

Construction of an upgraded Transfer Station facility at the Ootischenia Landfill, including a new z-wall, operational area, frontage road, stormwater management system, and 80 ft scale.

1.2 Direct all inquiries regarding the Contract to:

**Sperling Hansen Associates**
Scott Garthwaite
sgarthwaite@sperlinghansen.com
604-803-7120

**Regional District of Central Kootenay**
AJ Evenson
aevenson@rdck.bc.ca

**2.0 Tender Documents**

2.1 The tender documents which a tenderer should review to prepare a tender consist of all of the *Contract Documents* listed in Schedule 1 entitled "Schedule of Contract Documents". Schedule 1 is attached to the Agreement which is included as part of the tender package. The *Contract Documents* include the drawings listed in Schedule 2 to the Agreement, entitled "List of *Contract Drawings*".

2.2 A portion of the *Contract Documents* are included by reference. Copies of these documents have not been included with the tender package. These documents are the Instructions to Tenderers - Part II, General Conditions, Specifications and Standard Detail Drawings. They are those contained in the publication entitled "Master Municipal Construction Documents - General Conditions, Specifications and Standard Detail Drawings". Refer to Schedule 1 to the Agreement or, if not specified in Schedule 1, then the applicable edition shall be the most recent edition as of the date of the *Tender Closing Date*. All sections of this publication are by reference included in the *Contract Documents*.

2.3 Any additional information made available to tenderers prior to the *Tender Closing Time* by the *Owner* or representative of the *Owner*, such as geotechnical reports or as-built plans, which is not expressly included in Schedule 1 or Schedule 2 to the Agreement, is not

included in the *Contract Documents*. Such additional information is made available only for the assistance of tenderers who must make their own judgment about its reliability, accuracy, completeness and relevance to the *Contract,* and neither the Owner nor any representative of the *Owner* gives any guarantee or representation that the additional information is reliable, accurate, complete or relevant.

**3.0 Submission of Tenders**

3.1 Tenders must be submitted by email to tenders@rdck.bc.ca (CC aevenson@rdck.bc.ca). Submissions must be received by:

**Regional District of Central Kootenay**

on or before:

**Tender Closing Time**: 2:00 pm local time

**Tender Closing Date**: November 30, 2026

3.2 Late tender submissions will not be accepted or considered and will not be opened.

3.3 Failure by the tenderer to acknowledge all addenda may be cause for their tender to be rejected.

3.4 Questions will not be accepted or answered 48 hours prior to the Closing Date and Time.

**4.0 Additional Instructions to Tenderers**

**4.1 Pre-Tender Meeting**

An optional pre-tender site meeting will be held at the Project Site. Interested parties are asked to RSVP via email to aevenson@rdck.bc.ca. Attendees must wear appropriate personal protective equipment, including steel-toed footwear and high visibility clothing.

**Project Site:** Ootischenia Landfill - 616 Columbia Rd, Castlegar, BC

**Meeting Date & Time:** November 10, 2026 @ 11:00 am local time

4.2 Tenderers are highly encouraged to prepare the Schedule of Quantities and Prices in close consultation with "Technical Specification 01 20 00 - Measurement and Payment", as this chapter provides details on the exact scope of work included with each item.

**Owner:** Regional District of Central Kootenay
**Contract:** Ootischenia Landfill Transfer Station Upgrades
**Reference No.** PRJ26002

***To Owner:***

**1.0 WE, THE UNDERSIGNED:**

1.1 Have received and carefully reviewed all of the Contract Documents, including the Instructions to Tenderers, the specified edition of the "Master Municipal Construction Documents – General Conditions, Specifications and Standard Detail Drawings", and the following Addenda:

_____

_____

_____

1.2 Have full knowledge of the *Place of Work*, and the *Work* required; and

1.3 Have complied with the Instructions to Tenderers; and

**2.0 ACCORDINGLY WE HEREBY OFFER:**

2.1 To perform and complete all of the *Work* and to provide all the labour, equipment, and material all as set out in the *Contract Documents*, in strict compliance with the *Contract Documents*; and

2.2 To achieve Substantial Performance of the Work on or before July 31, 2027; and

2.3 To do the *Work* for the price, which is the sum of the products of the actual quantities incorporated into the *Work* and the appropriate unit prices set out in Appendix 1, the *"Schedule of Quantities and Prices",* plus any lump sums or specific prices and adjustment amounts as provided by the *Contract Documents*. For the purposes of tender comparison, our offer is to complete the *Work* for the "*Tender Price"* as set out on Appendix 1 of this Form of Tender. Our *Tender Price* is based on the estimated quantities listed in the *Schedule of Quantities and Prices,* and excludes GST.

**3.0 WE CONFIRM:**

3.1 that we understand and agree that the quantities as listed in the *Schedule of Quantities and Prices* are estimated, and that the actual quantities will vary.

**4.0 WE CONFIRM:**

4.1 that the following appendices are attached to and form a part of this tender:

4.1.1 the appendices as required by paragraph 5.3 of the Instructions to Tenderers – Part II; and

4.1.2 the *Bid Security* as required by paragraph 5.2 of the Instructions to Tenderers – Part II.

**5.0 WE AGREE:**

5.1 That this tender will be irrevocable and open for acceptance by the *Owner* for a period of 60 calendar days from the day following the *Tender Closing Date and Time,* even if the tender of another tenderer is accepted by the *Owner*. If within this period the *Owner* delivers a written notice ("*Notice of Award"*) by which the *Owner* accepts our tender we will:

5.1.1 Within 15 *Days* of receipt of the written *Notice of Award* deliver to the *Owner*:

.1 a Performance Bond and a Labour and Material Payment Bond, each in the amount of 50% of the Contract Price, covering the performance of the Work including the Contractor's obligations during the Maintenance Period, issued by a surety licensed to carry on the business of suretyship in the province of British Columbia, and in a form acceptable to the Owner;

.2 a Baseline Construction Schedule, as provided by GC 4.6.1;

.3 a "clearance letter" indicating that the tenderer is in Worksafe BC compliance; and

.4 a copy of the insurance policies as specified in GC 24 indicating that all such insurance coverage is in place and;

5.1.2 within 2 Days of receipt of written "*Notice to Proceed*", or such longer time as may be otherwise specified in the *Notice to Proceed*, commence the *Work*; and

5.1.3 sign the Contract Documents as required by GC 2.1.2.

**6.0 WE AGREE:**

6.1 That, if we receive written *Notice of Award* of this *Contract* and, contrary to paragraph 5 of this Form of Tender, we:

6.1.1 Fail or refuse to commence the *Work* as required by the *Notice to Proceed,*

Then such failure or refusal will be deemed to be a refusal by us to enter into the *Contract* and the *Owner* may, on written notice to us, award the *Contract* to another party. We further agree that, as full compensation on account of damages suffered by the *Owner* because of such failure or refusal, the *Bid Security* shall be forfeited to the *Owner,* in an amount equal to the lesser of:

6.1.2 The face value of the *Bid Security;* and

6.1.3 The amount by which our *Tender Price* is less than the amount for which the *Owner* contracts with another party to perform the *Work*.

**7.0 OUR ADDRESS IS AS FOLLOWS:** _____

_____

_____

Phone: _____

Email: _____

Attention: _____

This Tender is executed this _____ day of _____, 20____

*Contractor:*

_____
(FULL LEGAL NAME OF CORPORATION, PARTNERSHIP, OR INDIVIDUAL)

_____
(AUTHORIZED SIGNATORY)

_____
(AUTHORIZED SIGNATORY)

BETWEEN OWNER AND CONTRACTOR

This agreement made in duplicate this
_____ day of _____, 2026

**Contract:** Ootischenia Landfill Transfer Station Upgrades

**Reference No.** PRJ26002

BETWEEN:

The Regional District of Central Kootenay

(the "*Owner*")

AND

_____

_____

_____
(NAME AND ADDRESS OF CONTRACTOR)

(the "*Contractor*")

**The *Owner* and the *Contractor* agree as follows:**

**Article 1** **The Work Start/ Completion Dates**

1.1 The *Contractor* will perform all *Work* and provide all labour, equipment and material and do all things strictly as required by the *Contract Documents*.

1.2 The *Contractor* will commence the *Work* in accordance with the *Notice to Proceed*. The *Contractor* will proceed with the *Work* diligently, will perform the *Work* generally in accordance with the construction schedules as required by the *Contract Documents* and will achieve *Substantial Performance* of the *Work* on or before July 31, 2027 subject to the provisions of the *Contract Documents* for adjustments to the *Contract Time*.

1.3 Time shall be of the essence of the *Contract*.

**Article 2** **Contract Documents**

2.1 The "*Contract Documents*" consist of the documents listed or referred to in Schedule 1, entitled "Schedule of *Contract Documents*", which is attached and forms a part of this Agreement, and includes any and all additional and amending documents

issued in accordance with the provisions of the *Contract Documents*. All of the *Contract Documents* shall constitute the entire Contract between the Owner and the Contractor.

2.2 The *Contract* supersedes all prior negotiations, representations or agreements, whether written or oral, and the *Contract* may be amended only in strict accordance with the provisions of the *Contract Documents*.

**Article 3** **Contract Price**

3.1 The price for the Work ("*Contract Price*") shall be the sum in Canadian dollars of the following:

3.1.1 The product of the actual quantities of the items of *Work* listed in the *Schedule of Quantities and Prices* which are incorporated into or made necessary by the *Work* and the unit prices listed in the *Schedule of Quantities and Prices*; plus

3.1.2 All lump sums, if any, as listed in the *Schedule of Quantities and Prices,* for items relating to or incorporated into the *Work;* plus

3.1.3 Any adjustments, including any payments owing on account of *Changes* and agreed to *Extra Work,* approved in accordance with the provisions of the *Contract Documents*.

3.2 The *Contract Price* shall be the entire compensation owing to the *Contractor* for the Work and this compensation shall cover and include all profit and all costs of supervision, labour, material, equipment, overhead, financing, and all other costs and expenses whatsoever incurred in performing the *Work*.

**Article 4** **Payment**

4.1 Subject to applicable legislation and the provisions of the *Contract Documents*, the *Owner* shall make payments to the *Contractor*.

4.2 If the *Owner* fails to make payments to the *Contractor* as they become due in accordance with the terms of the *Contract Documents* then interest calculated at 2% per annum over the prime commercial lending rate of the Royal Bank of Canada on such unpaid amounts shall also become due and payable until payment. Such interest shall be calculated and added to any unpaid amounts monthly.

**Article 5** **Rights and Remedies**

5.1 The duties and obligations imposed by the *Contract Documents* and the rights and remedies available thereunder shall be in addition to and not a limitation of any duties, obligations, rights and remedies otherwise imposed or available by law.

5.2 Except as specifically set out in the *Contract Documents*, no action or failure to act by the *Owner, Contract Administrator* or *Contractor* shall constitute a waiver of any of the parties' rights or duties

afforded under the *Contract*, nor shall any such action or failure to act constitute an approval of or acquiescence in any breach under the *Contract*.

**Article 6 Notices**

6.1 Communications among the *Owner*, the *Contract Administrator* and the *Contractor*, including all written notices required by the *Contract Documents*, may be delivered by hand, or by email, or by pre-paid registered mail to the addresses as set out below:

The *Owner*:

**Regional District of Central Kootenay**

202 Lakeside Dr, Nelson, BC V1L 6B9

Email: AEvenson@rdck.bc.ca

Attention: AJ Evenson, Senior Project Manager

The *Contractor*:

_____

_____

(Company and Address of Contractor)

Email: _____

Attention: _____

The *Contract Administrator*:

**Sperling Hansen Associates**

1332 McGill R, Kamloops, BC V2C 6N6

Email: sgarthwaite@sperlinghansen.com

Attention: Scott Garthwaite, Sr. Consultant

6.2 A communication or notice that is addressed as above shall be considered to have been received

6.2.1 Immediately upon delivery, if delivered by hand; or

6.2.2 Immediately upon delivery if sent by email; or

6.2.3 After 5 *Days* from date of posting if sent by registered mail.

6.3 The *Owner* or the *Contractor* may, at any time, change its address for notice by giving written notice to the other at the address then applicable. Similarly if the *Contract Administrator* changes its address for notice then the *Owner* will give or cause to be given written notice to the *Contractor*.

6.4 The sender of a notice by email assumes all risk that the email is received by the recipient.

**Article 7 General**

7.1 This *Contract* shall be construed according to the laws of British Columbia.

7.2 The *Contractor* shall not, without the express written consent of the *Owner,* assign this *Contract,* or any portion of this *Contract*.

7.3 The headings included in the *Contract Documents* are for convenience only and do not form part of this Contract and will not be used to interpret, define or limit the scope or intent of this *Contract* or any of the provisions of the *Contract Documents*.

7.4 A word in the *Contract Documents* in the singular includes the plural and, in each case, the singular.

7.5 This agreement shall ensure to the benefit of and be binding upon the parties and their successors, executors, administrators, and assigns.

IN WITNESS WHEREOF the parties hereto have executed this Agreement the day and year first written above.

*Contractor:*

(FULL LEGAL NAME OF CORPORATION, PARTNERSHIP, OR INDIVIDUAL)

(AUTHORIZED SIGNATORY)

(AUTHORIZED SIGNATORY)

*Owner:*

(FULL LEGAL NAME OF CORPORATION, PARTNERSHIP, OR INDIVIDUAL)

(AUTHORIZED SIGNATORY)

(AUTHORIZED SIGNATORY)

**Schedule 1** **Schedule of Contract Documents**

The following is an exact and complete list of the *Contract Documents*, as referred to in Article 2.1 of the Agreement.

**NOTE:** The documents noted with "*" are contained in the "Master Municipal Construction Documents – General Conditions, Specifications and Standard Detail Drawings", edition dated 2019. All sections of this publication are included in the *Contract Documents*.

1.1 Agreement, including all Schedules;

1.2 Supplementary General Conditions – Ootischenia Landfill Transfer Station Upgrades;

1.3 General Conditions*;

1.4 Supplementary Specifications – Ootischenia Landfill Transfer Station Upgrades;

1.5 Specifications*;

1.6 Standard Detail Drawings*;

1.7 Executed Form of Tender, including all Appendices

1.8 *Contract Documents* listed in *Schedule 2* to *the Agreement – "List of Contract Drawings"*;

1.9 Instructions to Tenderers – Part I;

1.10 Instructions to Tenderers – Part II*;

1.11 The following Addenda:

(ADDENDA, IF ANY)

**Schedule 2** **List of Contract Drawings**

| Title | Drawing No. | Rev. |
|---|---|---|
| COVER SHEET AND LIST OF DRAWINGS | 26058-000 | B |
| EXISTING TOPOGRAPHY MAR 26, 2026 AND SITE FEATURES | 26058-001 | B |
| PROPOSED WORK OVERVIEW | 26058-002 | B |
| TRANSFER STATION AND SCALE AREA DESIGN SUBGRADE | 26058-100 | B |
| TRANSFER STATION AND SCALE AREA DESIGN SUBGRADE EARTHWORKS | 26058-101 | B |
| TRANSFER STATION FINAL GRADE | 26058-200 | B |
| TRANSFER STATION BAY SECTION A TO D | 26058-201 | B |
| LOCK BLOCK WALL PLAN VIEW AND SPECIFICATION | 26058-202 | B |
| TRANSFER STATION (BAY 3 TO 10) RAILING & BI-FOLD GATE DETAILS | 26058-203 | B |
| TRANSFER STATION (BAY 1 & 2) RAILING, GATE AND SPILL FLAP DETAILS | 26058-204 | B |
| TRANSFER STATION (BAY 1 & 2) SPILL FLAP DETAILS | 26058-205 | B |
| SURFACE WATER AND WATER MAIN MANAGEMENT PLAN | 26058-300 | B |
| SURFACE WATER AND WATER MAIN DETAILS | 26058-301 | B |
| LANDFILL INBOUND SCALE PLAN | 26058-400 | B |
| LANDFILL INBOUND SCALE SECTION AND DETAILS | 26058-401 | B |
| LANDFILL SCALE AND ATTENDANT OFFICE SECTION | 26058-402 | B |
| TRAFFIC MANAGEMENT AND SIGNAGE PLAN | 26058-403 | B |
| REINFORCED CONCRETE FOOTING & SLAB PLAN, SECTION & SPECIFICATION 1 **(BY OTHERS)** | 26058-404 | B |
| REINFORCED CONCRETE FOOTING & SLAB PLAN, SECTION & SPECIFICATION 2 **(BY OTHERS)** | 26058-405 | B |
| ELECTRICAL SCHEDULES **(DESIGNED BY KYSU)** | 26058-E-00 | B |
| ELECTRICAL SITE PLAN **(DESIGNED BY KYSU)** | 26058-E-01 | B |
| ELECTRICAL DETAILS **(DESIGNED BY KYSU)** | 26058-E-02 | B |
| ELECTRICAL SPECIFICATION **(DESIGNED BY KYSU)** | 26058-E-03 | B |
| SITE PLAN **(DESIGNED BY KSP SEPTIC)** | 26058-S-00 | B |

| **Title** | **Drawing No.** | **Rev.** |
|---|---|---|
| SITE PLAN **(DESIGNED BY KSP SEPTIC)** | 26058-S-01 | B |
| SITE PLAN - SCALE HOUSE **(DESIGNED BY KSP SEPTIC)** | 26058-S-02 | B |
| SITE PLAN - SCALE HOUSE **(DESIGNED BY KSP SEPTIC)** | 26058-S-03 | B |
| SITE PLAN - ATTENDANTS SHACK **(DESIGNED BY KSP SEPTIC)** | 26058-S-04 | B |
| DISPERSAL FIELD **(DESIGNED BY KSP SEPTIC)** | 26058-S-05 | B |
| DISPERSAL FIELD **(DESIGNED BY KSP SEPTIC)** | 26058-S-06 | B |
| TANK - SCALE HOUSE **(DESIGNED BY KSP SEPTIC)** | 26058-S-07 | B |
| TANK - ATTENDANTS SHACK **(DESIGNED BY KSP SEPTIC)** | 26058-S-08 | B |
| RISERS **(DESIGNED BY KSP SEPTIC)** | 26058-S-09 | B |
| ELECTRICAL NOTES - PUMP CHAMBER **(DESIGNED BY KSP SEPTIC)** | 26058-S-10 | B |

# Ootischenia Transfer Station Upgrades

## Schedule of Quantities and Prices

| Item | Description | Quantity | Units | Unit Price | Amount |
|---|---|---|---|---|---|
| **1** | **Contract Considerations** | | | | |
| 1.01 | Mobilization & Demobilization | 1 | LS | $ - | $ - |
| 1.02 | Performance and Labour & Materials Bonds | 1 | LS | $ - | $ - |
| 1.03 | Insurance | 1 | LS | $ - | $ - |
| 1.04 | Health and Safety Plan | 1 | LS | $ - | $ - |
| 1.05 | Traffic Management | 1 | LS | $ - | $ - |
| 1.06 | Survey, Submittals, Record Drawings (and Permits, as required) | 1 | LS | $ - | $ - |
| | | | | **Subtotal Section 1** | **$ -** |
| **2** | **Earthworks** | | | | |
| 2.01 | Clear, Grub, Strip and Stockpile: Transfer Station Area and Frontage Road | 34,000 | m2 | $ - | $ - |
| 2.02 | Waste Excavation to Subgrade incl. Loading, Hauling, and Disposal at Active Face and Coordination with Landfill Operations | 5,000 | m3 | $ - | $ - |
| 2.03 | Common Excavation of Subgrade incl. Loading, Hauling, and Stockpiling of Excess Material for Operational Use at Specified Location | 18,170 | m3 | $ - | $ - |
| 2.04 | Supply, Place, and Compact Granular Fill to Reach Subgrade Contours | 24,340 | m3 | $ - | $ - |
| 2.05 | Subgrade Preparation incl. Proof Rolling and Compaction | 34,000 | m2 | $ - | $ - |
| 2.06 | Supply and Place 150mm of Topsoil Over Sloped Transfer Station Areas | 2,600 | m2 | $ - | $ - |
| 2.07 | Hydraulic Seeding | 2,600 | m2 | $ - | $ - |
| | | | | **Subtotal Section 2** | **$ -** |
| **3** | **Lock Block Z-Wall** | | | | |
| 3.01 | Supply, Place, and Compact 25mm Well Graded Base Course Beneath Z-Wall | 120 | LM | $ - | $ - |
| 3.02 | Supply and Install 25-75mm Drainage Gravel Behind Z-Wall for Pore Pressure Relief c/w PVC Drain Pipe, Cleanouts, and Geotextile Wrap | 120 | LM | $ - | $ - |
| 3.03 | Supply and Place Type 1 Lock Blocks for Transfer Station Z-Wall (1500mm x 750mm x 750mm) | 310 | each | $ - | $ - |
| 3.04 | Supply and Place Type 1 Lock Blocks for Transfer Station Z-Wall (750mm x 750mm x 750mm) | 4 | each | $ - | $ - |
| 3.05 | Supply, Place and Compact Clean Structural Fill Behind Z-Wall | 1,023 | m3 | $ - | $ - |
| 3.06 | Supply and Install Tensar Uniaxial Geogrid Behind Z-Wall c/w Geogrid Lock Block Anchors | 1,901 | m2 | $ - | $ - |
| 3.07 | Supply and Install 100 x 100 mm Pressure-Treated Wooden Guide Rails on Z-Wall Bays | 10 | each | $ - | $ - |
| 3.08 | Construct Upper 7500 x 3750 mm Reinforced Concrete Pad (Bays 1 to 10) c/w Granular Base, 19mm Minus Crushed Gravel, Concrete Slab and Reinforcement, and Expansion Joints | 10 | each | $ - | $ - |
| 3.09 | Construct Lower 7500 x 3750 mm Reinforced Concrete Pad (Bays 1 to 10) c/w Granular Base, 19mm Minus Crushed Gravel, Concrete Slab and Reinforcement, and Expansion Joints | 10 | each | $ - | $ - |
| 3.10 | Deconstruct Existing Organics Transfer Station Bay and Install Components in Bay 1 incl. Disposal Gate, Guard Rail, and Spill Flap | 1 | LS | $ - | $ - |
| 3.11 | Supply and Install Railings and Gates for Bays 3-10 (Hot-Dip Galvanized) | 1 | LS | $ - | $ - |
| 3.12 | Supply and Install Disposal Gate, Guard Rail, and Spill Flap for 'Bay 2' Organics Bin (Hot-Dip Galvanized) | 1 | LS | $ - | $ - |
| 3.13 | Supply and Install Type 2 Lock Blocks for U-Bays (8 Bays) (1500mm x 750mm x 750mm) | 170 | each | $ - | $ - |
| | | | | **Subtotal Section 3** | **$ -** |
| **4** | **Scale and Front-End** | | | | |
| 4.01 | Construct Reinforced Concrete Scale Foundations incl. Subgrade Preparation and 19mm Minus Base | 1 | LS | $ - | $ - |
| 4.02 | Provide Geotechnical and Structural QAQC and Testing by Third Party | 1 | LS | $ - | $ - |
| 4.03 | Supply and Install 80' Long and 11' Wide Above-Ground Vehicle Weighing Scale | 1 | LS | $ - | $ - |
| 4.04 | Supply and Install Scale Operating Software - Compatible with Existing Data Management Software Run by RDCK | 1 | LS | $ - | $ - |
| 4.05 | Construct Asphalt Access Ramps c/w 19mm Minus Crushed Gravel, Asphalt, and Level Concrete Approach | 1 | LS | $ - | $ - |
| 4.06 | Supply and Install Type 1 Lock Blocks for Asphalt Access Ramps (1500mm x 750mm x 750mm) | 1 | LS | | $ - |
| 4.07 | Supply and Install Full Length Guard Rails on Both Sides of New Inbound Scale | 1 | LS | $ - | $ - |
| | | | | **Subtotal Section 4** | **$ -** |
| **5** | **Surface Water Management System** | | | | |
| 5.01 | Construct 350mm Surface Water Ditching incl. 450mm Thick Layer of 25kg Rip Rap | 350 | LM | $ - | $ - |
| 5.02 | Construct 600mm Surface Water Ditching incl. 450mm Thick Layer of 25kg Rip Rap | 100 | LM | $ - | $ - |
| 5.03 | Supply and Install 300mm dia. HDPE Double-Wall Corrugated Culvert | 55 | LM | $ - | $ - |
| 5.04 | Supply and Install 450mm dia. HDPE Double-Wall Corrugated Culvert | 36 | LM | $ - | $ - |
| | | | | **Subtotal Section 5** | **$ -** |
| **6** | **Electrical** | | | | |
| 6.01 | Power & Communication Systems - Attendant Building #1 | 1 | LS | $ - | $ - |
| 6.02 | Power & Communication Systems - Attendant Building #2 | 1 | LS | $ - | $ - |
| 6.03 | Power - Well Pump | 1 | LS | $ - | $ - |
| 6.04 | Power - Gate Entry (North) | 1 | LS | $ - | $ - |
| 6.05 | Power - Gate Entry (South) | 1 | LS | $ - | $ - |
| 6.06 | Site Security System - Attendant Building #1 | 1 | LS | $ - | $ - |
| 6.07 | Site Lighting - Weigh Scale | 1 | LS | $ - | $ - |
| 6.08 | Site Lighting - Gate Entry (North) | 1 | LS | $ - | $ - |
| 6.09 | Site Lighting - Gate Entry (South) | 1 | LS | $ - | $ - |
| 6.10 | Site Lighting - Attendant Building #2 | 1 | LS | $ - | $ - |
| 6.11 | Site Lighting - Attendant Building #1 | 1 | LS | $ - | $ - |
| 6.12 | Site Lighting - Roadway & Sorting Bins | 1 | LS | $ - | $ - |
| | | | | **Subtotal Section 6** | **$ -** |
| **7** | **Roads, Traffic, and Signage** | | | | |
| 7.01 | Construct Upper Asphalt Pad and Paved Road Access System c/w Components | | | | |
| | a) High-Strength Woven Geotextile | 15,240 | m2 | $ - | $ - |
| | b) 300mm Thick Coarse Granular Road Base | 15,240 | m2 | $ - | $ - |
| | c) 100mm Thick 19mm Minus Crushed Gravel | 15,240 | m2 | $ - | $ - |
| | d) 75mm Thick Asphalt | 15,240 | m2 | $ - | $ - |
| 7.02 | Construct Lower Gravel Pad and Access System c/w Components | | | | |
| | a) 300mm Thick Coarse Granular Road Base | 12,780 | m2 | $ - | $ - |
| | b) 100mm Thick 19mm Minus Crushed Gravel | 12,780 | m2 | $ - | $ - |
| 7.03 | Supply and Install Access Gates at New North Entrance | 1 | LS | $ - | $ - |
| 7.04 | Supply and Install No-Post Barriers | 40 | each | $ - | $ - |
| 7.05 | Supply and Install Traffic Signage | 16 | each | $ - | $ - |
| | | | | **Subtotal Section 7** | **$ -** |
| **8** | **Septic Field and Holding Tank** | | | | |
| 8.01 | Supply and Install New 4" CSA Sewer Line c/w Cleanouts, Fittings, and Tie-in to Existing 4" Sewer Pipe Per BC Plumbing Code | 350 | LM | | $ - |
| 8.02 | Supply and Install Holding Tank at Attendants Shack #2 c/w Ultrarib/Polylok Riser and Tank Alert EZ Alarm | 1 | LS | | $ - |
| 8.03 | Construct Gravity Dispersal Field c/w Components | | | | $ - |
| | a) 6-Hole Distribution Box c/w 3 Poly Lok Rotoflow Equalizers and Solid Walled Pipe (Min. 1% Slope) | 1 | LS | | $ - |
| | b) Gravity Seepage Bed c/w Infiltrative Surface Prep, 300 mm Thick Coarse Aggregate, Lighweight Non-Woven Geotextile, and 150-300 mm Thick Cover Soil | 16 | m2 | | $ - |
| | c) Typ. 4" Clean-Outs (Test/Flush Caps) c/w Adaptors, Caps, Fittings, and Access Box | 3 | each | | $ - |
| | d) 3-4" CSA SCH40 PVC Perforated Sewer Pipe (Slope <0.2%) c/w Pipe Observation Ports | 23 | LM | | $ - |
| 8.04 | Supply and Install Septic Tank at Scale House c/w Ultrarib/Polylok Riser and Effluent Filter with Extension Handle | 1 | LS | | $ - |
| | | | | **Subtotal Section 8** | **$ -** |
| **9** | **Site Infrastructure** | | | | |
| 9.01 | Relocate and Install Existing Attendant Shacks c/w Utilities | 2 | each | $ - | $ - |
| 9.02 | Supply and Install Stainless Steel Staircase for Z-Wall Accessibility | 1 | LS | $ - | $ - |
| 9.03 | Construct Water Forcemain from Existing Onsite GW Well c/w HDPE Pipe, Pipe Embedment and Compaction, Caution Tape, Backfill and Compaction, and Tie-in to Attendant Shack #1 & #2, Scale House, and Standpipes (x2) | 1 | LS | $ - | $ - |
| 9.04 | Construct Clean Water Stand Pipe | 2 | each | $ - | $ - |
| 9.05 | Flushing, Testing, and Commissioning for Water Lines | 1 | LS | $ - | $ - |
| 9.06 | Supply and Install Site Washroom (Job Jon) and Tie-In to Holding Tank | 1 | LS | $ - | $ - |
| 9.07 | Remove and Dispose of Existing Fence (may be disposed in the Ootischenia Landfill) | 300 | LM | $ - | $ - |
| 9.08 | Install New Electric Fence (incl. all wires, posts, staples, insulators, testing, etc.) | 500 | LM | $ - | $ - |
| | | | | **Subtotal Section 9** | **$ -** |
| | | | | **Subtotal for Ootischenia Transfer Station Upgrades** | **$ -** |
| | | | | **Plus GST** | **$ -** |
| | | | | **Total** | **$ -** |

**Contract:** Ootischenia Landfill Transfer Station Upgrades

See paragraph 5.3.2 of the Instructions to Tenderers – Part II.
Indicate Schedule with bar chart with major item descriptions and time.

**Milestone Dates:**

Notice to Proceed: December 17, 2026

Substantial Completion: July 31, 2027

Total Completion: August 31, 2027

| ACTIVITY | CONSTRUCTION SCHEDULE | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| | | | | | | | | | | |
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# APPENDIX 3
# EXPERIENCE OF SUPERINTENDENT

**Contract:** Ootischenia Landfill Transfer Station Upgrades

See paragraph 5.3.3 of the Instructions to Tenderers – Part II.

*Superintendent Name:* _____

*Superintendent Experience:*

**Project Name:** _____
Dates: _____
Responsibility: _____
_____
_____
Reference: _____
Phone/Email: _____

**Project Name:** _____
Dates: _____
Responsibility: _____
_____
_____
Reference: _____
Phone/Email: _____

**Project Name:** _____
Dates: _____
Responsibility: _____
_____
_____
Reference: _____
Phone/Email: _____

# APPENDIX 4
# COMPARABLE WORK EXPERIENCE

**Contract:** Ootischenia Landfill Transfer Station Upgrades

See paragraph 5.3.4 of the Instructions to Tenderers – Part II.

| **Project:** | **Value: $** |
|---|---|
| **Contact:**<br>Name: _____<br>Phone: _____<br>Email: _____ | **Description of Work:** |
| **Project:** | **Value: $** |
| **Contact:**<br>Name: _____<br>Phone: _____<br>Email: _____ | **Description of Work:** |
| **Project:** | **Value: $** |
| **Contact:**<br>Name: _____<br>Phone: _____<br>Email: _____ | **Description of Work:** |
| **Project:** | **Value: $** |
| **Contact:**<br>Name: _____<br>Phone: _____<br>Email: _____ | **Description of Work:** |

**Contract:** Ootischenia Landfill Transfer Station Upgrades

See paragraph 5.3.5 of the Instructions to Tenderers – Part II.

| TENDER ITEM | TRADE | COMPANY NAME | CONTACT |
|---|---|---|---|
| | | | Name: _____<br>Email: _____<br>Phone: _____ |
| | | | Name: _____<br>Email: _____<br>Phone: _____ |
| | | | Name: _____<br>Email: _____<br>Phone: _____ |
| | | | Name: _____<br>Email: _____<br>Phone: _____ |

# SUPPLEMENTARY GENERAL CONDITIONS

The General Conditions for this project are contained in the Master Municipal Construction Documents (MMCD) 2019 Edition, except as specified in the following Supplementary General Conditions and MMCD Supplemental Updates (as specified in Schedule 1 of the Form of Agreement). These Supplementary Conditions take precedence over the applicable MMCD General Conditions.

**Owner:** Regional District of Central Kootenay
**Contract:** Ootischenia Landfill Transfer Station Upgrades
**Reference No:** PRJ26002

## SGC 27.0 MEASUREMENT AND PAYMENT

27.1 VARIANCE THRESHOLD PERCENTAGE

1) GC 1.76.1 is amended to be as follows: "Variance Threshold Percentage means **a variance of 25%** between the quantity of a unit price item actually constructed or provided by the time of Total Performance and the quantity shown on the tendered Schedule of Quantities and Prices for that item."

## SGC 28.0 MATERIALS TESTING

28.1 MATERIALS TESTING

1) The Contractor shall hire a third-party materials tester at their own cost to perform all materials testing, inspections, and approvals of the Work necessary for Quality Assurance and Quality Control to ensure materials, products, and workmanship are in strict conformance with the Contract Documents. The Contractor shall provide the results of such tests, inspections, and approvals to the Contract Administrator upon request.

2) GC 4.12.6 – Add the following paragraph: "In all cases, the Contractor is responsible to facilitate and provide access to all Works for the purpose of inspection and testing."

## SGC 29.0 DELAYS

29.1 LIQUIDATED DAMAGES FOR LATE COMPLETION

1) GC 13.9.1(1) is amended to be as follows: "as a genuine pre-estimate of the Owner's increased costs for the Contract Administrator and the Owner's own staff caused by such delay an amount of **$1,000.00 per day** or pro rata portion for each Day that actual Substantial Performance is achieved after the Substantial Performance Milestone Date; plus".

## SGC 30.0 PAYMENT

30.1 HOLDBACKS

1) GC 18.4.2 – Add the following paragraph: "The Contractor will repair any defects or deficiencies within 10 working days after the date of written notification by the Contract Administrator. If the defects or deficiencies, or any part thereof, are not repaired within 10 working days of written notification from the Owner, the Owner may draw funds from the deficiency holdback and the Owner may complete the work at the expense of the Contractor. All costs pertaining to the repair, including the Owner's administration costs, shall be deducted from the deficiency holdback. It is understood and agreed that the Owner may do such work either by itself, or by contractors employed by the Owner."

30.2 PAYMENT

1) GC 18.5.1 – Delete the words "15th Day" and replace with the words "30th Day".

2) The Contractor shall be responsible to accurately record, and prove, by use of accepted survey records and measurements, that all claimed quantities have been complete, and conform with all contractual requirements.

3) With every monthly application for payment, the Contractor shall submit all relevant survey records for the current Progress Claim and a master survey record summary for all completed Work, in a form acceptable to the Contract Administrator. Failing to provide such records could invalidate the Progress Claim and payment may not be considered.

30.3 SUBSTANTIAL PERFORMANCE

1) GC 18.6.1 – Delete the words "written application" and replace with the words "written application, in accordance with the provision of GC 18.6.3".

2) GC 18.6.4 is amended to be as follows: "The Contract Administrator shall include the date of Substantial Performance in the Certificate of Substantial Performance. The date for Total Performance shall be **10 calendar days** after the date of Substantial Performance unless otherwise agreed by the Contract Administrator."

3) GC 18.6.5 – Add the following paragraph: "The Contract Administrator shall prepare a Payment Certificate for the release of the lien holdback and the amount shall be due and payable in accordance with GC 18.5.1."

30.4 TOTAL PERFORMANCE

1) GC 18.7.4 – Add the following paragraph: "If Total Performance is not achieved on the date as outlined in GC 18.6.4, upon written notification, the Owner may complete or cause to be completed any and all outstanding deficiencies. All resulting costs incurred by the Owner in completing the Work, including administration and inspection costs, will be deducted from the amounts owing by the Owner to the Contractor."

30.5 QUANITITY VARIATIONS

1) The unit rates set out in the Schedule of Quantities and Prices shall be considered fixed unless the "Variance Threshold Percentage" is exceeded.

30.6 BUDGET CONSTRAINTS

1) The Owner has a capital budget for this project and intends to remain within the budget. As such, the Owner reserves the right to reduce or extend the scope of work as required at the unit rates tendered and without penalty. The Owner in its sole discretion will decide on additions or deletions to the Scope of Work.

## SGC 31.0 BONDING AND INSURANCE REQUIREMENTS

31.1 BONDING

1) The Contractor may provide, in lieu of the specified Performance and Labour and Materials Bonds, security for performance of the Contract in the form of a certified cheque or bank draft for 10% of the Contract Price and:
   (a) The certified cheque or bank draft shall be in favour of the Regional District of Central Kootenay;
   (b) The certified cheque or bank draft will be deposited and the monies will not be returned to the Contractor, in whole or in part, until satisfactory performance of all of the Contractor's obligations under the Contract; and
   (c) Provided the Contractor has satisfactorily fulfilled all of its obligations under the Contract, the Owner will return to the Contractor 75% of the monies provided as Contract Security without interest, no later than 30 days after Substantial Performance of the Work. The remaining 25% will be returned to the Contractor one year after Substantial Performance of the Work subject to no deficiencies being identified at the One Year Warranty Inspection.
2) OR The Contractor may provide, in lieu of the specified Bonds or the specified certified cheque or bank draft, security for the performance of the Contract in the form of an irrevocable bank letter of credit for 10% of the Contract Price; and:
   (a) The letter of credit shall be in favour of the Regional District of Central Kootenay;
   (b) The letter of credit shall have an expiry date no earlier than 24 months from the date of the tender close;
   (c) The letter of credit will not be returned to the Contractor until satisfactory performance of all of the Contractor's obligations under the Contract; and
   (d) Provided the Contractor has satisfactorily fulfilled all of its obligations under the Contract, the Owner will return the letter of credit to the Contractor one year after Substantial Performance of the Work subject to no deficiencies being identified at the One Year Warranty Inspection.

31.2 REQUIRED INSURANCE

Remove GC 24.1 INSURANCE and replace entirely:

1) Without restricting the generality of the indemnification provisions of this Agreement, insurance and coverage will be arranged and paid for as under-noted:

2) The Contractor must take out and maintain the insurance coverages detailed in this section 31 and shall provide the Owner evidence of coverage upon execution of this Agreement in the following format:

   (a) an ICBC form APV 47; and

   (b) the Owner's Standard Certificate of Insurance form completed by the Contractor's broker.

| COVERAGE TYPE | MINIMUM AMOUNT | MINIMUM AGGREGATE | DEDUCTIBLE MAXIMUM |
|---|---|---|---|
| **Automobile Liability (third party) Insurance** for vehicles used to complete the Services. | $5,000,000 per occurrence | N/A | N/A |
| **Commercial General Liability** | $5,000,000 per occurrence | N/A | $5,000 |
| **Course of Construction/Builder's Risk** | Not less than the sum of 1.1 times the Maximum Contract Price | N/A | N/A |
| **Contractor's Equipment Coverage** | Equivalent to the replacement cost of all owned, rented and/or leased equipment of the contractor. | N/A | N/A |

3) The Contractor shall maintain **Commercial General Liability** coverage for the Term of this Agreement and a minimum of one (1) year after the completion of the Services with Products and Completed Operations coverage extended for an additional year (2 years in total). To achieve the desired limit, umbrella or excess liability insurance may be used. Such insurance will include but is not limited to the following:

   (a) Broad Form bodily injury, death, property damage, and personal injury coverage, on an occurrence basis;

   (b) Non-Owned Automobile Liability with a limit not less than $2,000,000 per occurrence (including contractual non-owned automobile liability endorsement SEF 96);

   (c) Blanket Contractual Liability;

   (d) Liability and/or Severability of Interests;

   (e) A Waiver of Subrogation in favour of the Regional District of Central Kootenay;

(f) Name "Regional District of Central Kootenay, its elected officials, officers, employees, servants, and agents", as an Additional Insureds;

(g) Name the RDCK's Consultant, "Sperling Hansen Associates, its officers, employees, servants, and agents", as an Additional Insureds;

(h) Require the insurer to provide the Owner with 30 days written notice of any material change or cancellation;

(i) Premises and Operations;

(j) Products and Completed Operations;

(k) Attached Machinery;

(l) Coverage that is Primary and Non-Contributory to any other sources of insurance available to the Contractor or the Owner.

4) The Contractor shall maintain Course of Construction coverage from the date of commencement of the Services until 60 days after the RDCK has certified or verified the Substantial Completion.

5) The Contractor shall maintain Contractor's Equipment coverage for the Term of this Agreement, which shall cover, on a replacement cost basis, all property, of every description, to be used in the construction of the Work, against "All Risks" of physical loss or damage, including earthquake and flood, while such property is being transported to the site, and thereafter throughout erection, installation and testing.

31.3 ADDITIONAL INSURANCE TERMS AND CONDITIONS

1) Subject to satisfactory proof of financial capability by the Contractor, the Owner may agree to increase the deductible amounts.

2) The Contractor is solely responsible for determining what additional insurance coverage, if any, is necessary or advisable for the protection of the Contractor or that is required by the Contractor to fulfill its obligations under this Agreement, with such additional insurance maintained and provided at the sole expense of the Contractor and with the Contractor being responsible for obtaining whatever additional insurance it deems necessary.

3) The Contractor shall pay the deductible amounts in the event of a claim which the above policies are required to pay.

4) The Contractor shall ensure that all insurance required to be maintained by the Contractor under this Agreement is underwritten by a responsible insurance company or companies licensed to do business in the province of British Columbia.

5) As may be applicable, the Contractor must cause all subcontractors to comply with the insurance requirements outlined in section 31 of this Agreement.

6) The Owner may, at its discretion, notify the Contractor that the terms, amounts and types of insurance required to be obtained by the Contractor hereunder be changed. The Contractor shall, upon request, obtain a written quote from its insurer for the incremental cost of such additional or amended coverage and submit that quote to the Owner for review. The Owner may, in its sole discretion, approve or decline the proposed increase. Where the Owner approves the increase in writing, the Owner will pay the approved incremental cost increase, and the parties shall record the change and payment terms in an Agreement Amendment. The Contractor shall not bind or purchase the increased or amended coverage until Owner's written approval is provided.

7) If the Contractor's insurance policies expire prior to the coverage periods identified in section 31 of this Agreement, the Contractor shall renew its insurance policies prior to the expiry date and provide the Owner with an updated evidence of insurance in the format identified in section 31.2, confirming such renewal to the Owner within 14 days of its current policy's expiry.

8) In the event the Contractor shall fail to take out and maintain such insurance at all times during the coverage periods identified in section 31 the Owner shall be entitled to take out and maintain equivalent insurance at the cost of the Contractor and the Contractor will pay to the Owner, on demand, the Owner's cost of so doing, or at the option of the Owner, the Owner shall be entitled to terminate this Agreement.

## SGC 32.0 CONTRACTOR RESPONSIBILITIES

32.1 DISPOSAL SITES

1) The Contractor may dispose of any waste encountered onsite as follows:
   (a) Clearing and grubbing vegetation and invasive blackberries can be stockpiled onsite for grinding or composting.
   (b) Existing fencing to be removed may be disposed of in the Ootischenia Landfill.
   (c) Any other waste encountered may be disposed of onsite with consultation with the RDCK and Waste Management contractor. This shall include any waste encountered during the Works.

32.2 SUPERINTENDENT

1) GC 4.7.3 is amended as follows: If the competence or performance of the Superintendent is not satisfactory to the Contract Administrator, then on written request from the Owner, the Contractor shall provide a satisfactory replacement. The Contractor shall not change the Superintendent without the consent of the **Contract Administrator.**

32.3 AS-BUILT DRAWINGS

1) The Contractor shall provide to the Owner and Contract Administrator, at the lump sum bid, all information in electronic format complete with Red Line mark-up drawings that is necessary for the Contract Administrator to produce as-constructed drawings. This information shall be provided within 30 days after construction is complete. It is the Contractor's responsibility to contact the Contract Administrator to determine which electronic format shall be used when submitting such information. This information shall include, but is not limited to:
   (a) location of all system components, such as maintenance hatches, cleanouts, PVC bends, inspection chambers and valves;
   (b) inverts of pipes at PVC bends, manholes, cleanouts and tie ins;
   (c) depth of inspection chambers; and
   (d) rim elevations for manholes, cleanouts, catch basins, curb stops and valves.

## SGC 33.0 MAINTENANCE PERIOD

33.1 CORRECTION OF DEFECTS

1) Delete GC 25.1.1 and replace with the following: "The Contractor shall, at the Contractor's own expense, promptly correct defects or deficiencies in the Work that appear prior to and during the period of **eighteen (18) months** from the date of Substantial Performance, or such longer periods as may be specified in the Contract Documents for certain products or Work (the "Maintenance Period").

2) The Contractor shall schedule with the Contractor Administrator a final maintenance inspection prior to the expiry date of the Maintenance Period to inspect the works and determine what defects and deficiencies exist.

3) The Contractor agrees that if the required repairs, or any part thereof, are not completed in accordance with the provisions of the Contract Documents, the Owner may complete the repairs at the expense of the Contractor. It is understood and agreed that the Owner may do such work either by itself, or by other contractors engaged by the Owner.

4) Notwithstanding the above, the Owner reserves the right to not complete the repairs and may, after 20 working days of written notification impose liquidated damages of up to $1,000.00 per day until such time as the repairs have been completed.

5) Any costs incurred by the Owner to complete the repairs, including administration costs, or any damages in accordance with the Contract Documents, shall be deducted from the security held by the Owner. The balance of the security will be returned to the Contractor within 10 days of the date of expiration of the Maintenance Period. If there is insufficient money in the security to cover the costs incurred by the Owner, then the Contractor will pay such deficiency to the Owner immediately upon receipt of an invoice from the Owner.

## SGC 34.0 EARLY USE OF THE WORK

34.1 EFFECT ON MAINTENANCE PERIOD

1) Delete GC 26.3.1 and replace with the following: "There will be no effect on the Maintenance Period if the Owner takes over and begins to use a portion of the Work before Substantial Performance is achieved. The Maintenance Period for all Work shall commence from the date of Substantial Performance of the Contract."

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# Section 00 51 00 – Project Overview

## PART 1 GENERAL

1.01 PROJECT SITE

A. The Site is located at the Ootischenia Landfill, just southeast of Castlegar BC at 616 Columbia Road. The landfill has operated for many years; however, due to the site experiencing longer delays in service and transferring to the regional landfill with the closure of the Nakusp Landfill, the RDCK is seeking to provide major upgrades to the Residential Drop Off area at the site. This includes the construction of a new z-wall transfer station, the installation of a second scale, site utility relocation, and significant road works.

B. Access to the Site is available from Columbia Road, and gate keys will be provided to the successful Contractor upon award of the project.

1.02 GENERAL SCOPE OF WORK

A. The overall scope of work for the Ootischenia Transfer Station Upgrades includes the following work components, with a detailed breakdown of the scope included in Section 01 11 00 – Summary of Work:

B. Earthworks

1. Clearing, grubbing, and stripping of the transfer station area.
2. Bulk excavation, relocation, and compaction of soils. The area may contain historical buried waste, which will be relocated to the active face of the landfill.
3. Subgrade preparation of the upper (drop off) and lower (operations and recycling) pads, as well as construction of the one-way frontage road to facilitate both residential and commercial traffic separately.

C. Lock Block Z-wall

1. Construction of a 10-bay lock-block z-wall, including all foundations, railings, and concrete pads. Two of the bays are intended for organic waste and will require a different railing than the regular Municipal Solid Waste (MSW) bins.

D. Scale and Front-End

1. Construction and installation of a second vehicle weight scale to serve outbound traffic and improve user experience, including geotechnical testing for the foundation.
2. At this time, the scope of work does not include the scale accessories such as traffic lights, load inspection cameras, computer systems, and software.

E. Surface Water Management System

1. Construction of surface water ditching, culverts, and two storm water infiltration areas.

2. Relocation of the existing water line from the on-site well to the existing scale house to facilitate the other site upgrades.

F. Electrical

1. Installation of electrical components including lighting, cameras, and services for the spotter shack. Also includes upgraded services for the scale house to facilitate future electrical upgrades.

G. Roads, Traffic, and Signage

1. Construction of the upper and lower pads, and the new roads including supply, placement, and compaction of gravels.
2. Supply and installation of traffic signage, no post barriers, and access gates.
3. Supply and placement of asphalt throughout the site.

H. Septic Field and Holding Tank

1. Construction of a gravity sewer line to a new septage field to service the existing scale house.
2. Installation of a septage holding tank near the recycling area to service the new toilet there.

I. Site Infrastructure

1. Construction of site attendant shacks.
2. Supply and installation of steel staircase to facilitate pedestrian access between upper and lower pads.
3. Supply and installation of new site washrooms.

## 1.03 OWNER OCCUPANCY

A. The Owner will occupy the site throughout construction.

B. The Contractor shall cooperate with the Owner’s requirements to schedule operations to minimize conflict and facilitate the continuous working of the Landfill.

C. Landfill operating hours will not be permitted to be changed. There may be allowance for closure of the scale for a limited period of time to facilitate construction of the roads, Contractor to coordinate with Owner and Contract Administrator.

## 1.04 EXISTING SERVICES

A. Notify the Contract Administrator and utility companies of intended service interruptions and obtain required permissions.

B. Provide the Contract Administrator a minimum 48 hours' notice when work involves breaking into, or connecting to, existing services. Provide the Contract Administrator a minimum 48 hours' notice for necessary interruption of

mechanical or electrical services. Minimize duration of interruptions. Carry out work, at times as directed by governing authorities, with minimum disturbance to Owner's operations.

C. Comply with reviewed schedule and provide notice to affected parties. Provide temporary services to maintain critical building services.

D. Protect, relocate, or maintain existing active services. When inactive services are encountered, cap off in manner approved by authorities having jurisdiction.

## PART 2 PRODUCTS

2.01 NOT USED

## PART 3 EXECUTION

3.01 NOT USED

**** END OF SECTION ****

# Section 00 73 19 – Site Health and Safety Requirements

## PART 1 GENERAL

1.01 SECTION INCLUDES

A. Aspects ensuring safety on the Site including project specific concerns, safety officer, equipment, and sanitation.

1.02 GENERAL SAFETY PROVISIONS

A. The landfill has been filled with a variety of materials that are airborne, sharp, odourous, hazardous, and possibly infectious. While none of these materials are expected to be present in the Work area, the Contractor shall still exercise caution during all Work below the ground surface. Hazardous materials such as asbestos, landfill gas, and large-sized waste may be encountered and must be dealt with safely. The Contractor will be responsible for all damage caused to utilities during the excavation process.

B. The failure to thoroughly familiarize himself/herself with the safety provisions shall not relieve the Contractor from compliance with the obligations and penalties set forth therein.

C. The Contractor, as part of his safety program, shall maintain at his office or other well-known place at the project Site, safety equipment and instruments applicable to the Work. The Owner and the Contract Administrator must be informed of all accidents arising out of, or in connection with, the performance of the Work whether on, or adjacent to, the Work Site, giving full details and statements of witnesses.

D. If a claim is made by anyone against the Contractor or any subcontractor on account of any accident, the Contractor shall promptly report the facts in writing to the Owner and Contract Administrator, giving full details of such claim.

1.03 SUBMITTALS

A. Submittals shall be made in accordance with the provisions of Section 01 33 00 - Submittal Procedures.

B. Submit the Contractor’s Site-specific Health and Safety Plan for project records.

1.04 SITE-SPECIFIC HEALTH AND SAFETY PLAN

A. The Contractor shall develop and maintain for the duration of this Contract, a Site-specific Health and Safety Plan prepared under the supervision of and signed by a Registered Occupational Hygienist (ROH) with experience in workplace health and safety issues related to landfills that will effectively incorporate and implement all required municipal, provincial (Workers’

Compensation Board Occupational Health and Safety Regulation), and federal safety provisions. The Contractor shall provide a written Site-specific Health and Safety Plan for the construction within the ITT submittals after the Notice of Award. The Contractor shall always maintain at least one copy at the Work Site.

B. Preparation of the Site-specific Health and Safety Plan is solely the Contractor's responsibility and no statement made in these provisions shall relieve Contractor of sole responsibility for information included and implementation of the Site-specific Health and Safety Plan.

C. Submission of the Site-specific Health and Safety Plan is solely for evidence of compliance with the Contract Documents, and for reference and general information. The submission and subsequent review by the Contract Administrator shall not relieve the Contractor from sole responsibility as to the adequacy of its Site-specific Health and Safety Plan.

D. The Contract Administrator’s review of the Contractor’s performance is not intended to include an evaluation or approval of the adequacy of the Contractor’s safety supervisor, safety program or any safety measures taken in, on, or near the Site.

E. The Contractor's Site-specific Health and Safety Plan shall include, and not be limited to, the following:

1. A pre-contract hazard assessment, including mitigation measures, that may be encountered on the Site or while carrying out the work. The Contractor is required to develop and implement their own mitigation measures which eliminate or control, all identified hazards such as exposure to landfill gas and hazardous waste, asbestos contaminated material, Remediated Contaminated Soils, sharps, pressure vessels and electrical shock, allowable exposure levels, threshold limit values, other regulatory exposure levels, and the emergency response should an exposure or injury occur.

2. A system or process to ensure effective Site orientation and hazards communication with all persons entering the Site. The Contractor shall maintain at the Site office a list of personnel on-Site at the start of each working day and a contact person in the event of a Site evacuation

3. Address the handling and disposal of asbestos containing waste and must include the following:

    a. Monitoring procedures

    b. Worker protection procedures

    c. Handling procedures

    d. Disposal procedures

4. A procedure to carry out inspections, pre-job and Site safety meetings, the assembly of a toolbox safety committee, incident review, and other related meetings.
5. A procedure to deal on-Site with medical emergencies requiring first aid initially, including: identifying Contractor personnel with formal first aid training and certification, Owner operational personnel with similar training, on-Site facilities at the landfill facility and the availability of supplies and equipment, if needed.
6. An emergency evacuation procedure for the immediate safe removal of injured personnel to a medical facility under a doctor's care, any person who may be injured on the job Site including an evacuation plan route to a medical treatment center, and emergency telephone numbers including hospital, ambulance, fire, police, poison control, the Owner, the Contract Administrator, and others as deemed necessary.
7. Procedures for entering confined spaces, if required.
8. Procedures to ensure proper worker hydration during the day.
9. Procedures to ensure substance abuse is not an issue by preventing the use of substances that impair a worker’s judgement (e.g. alcohol, medical drugs, marijuana, etc.) in moving around the Site carrying out their responsibilities and especially when operating heavy equipment.
10. Communication protocols for reporting to the Contract Administrator and WorkSafe BC Site safety issues or concerns, first aid incidents, emergencies, damage claims, and the like.
11. Air safety monitoring program including equipment action levels, frequency of testing, and recommended responses.
12. Identification of each subcontractor’s safety officer.
13. A list of safety equipment and monitoring instruments at the job Site and locations where equipment and instruments are stored or expected to be maintained.
14. Monitoring instrument action levels, frequency of testing, and recommended responses.
15. Documentation of the initial Site safety meeting, safety committee meetings, reviews of subcontractors’ safety systems, inspection and incident investigations, first aid records, orientation and training.
16. Communication protocols for reporting to the Contract Administrator documentation of monthly first aid, medical aid, and lost time statistics, Site formal inspections, incident reports, safety meeting minutes, confined space entry permits, and hot Work permits.
17. Any other relevant information or documentation to meet the provisions in the Contract Documents.

F. The Contractor shall inform all workers and the public visiting the Site of the potential for the presence of methane and other landfill gases emanating from the natural decomposition of MSW buried at or near the job Site, and the importance of safety precautions to ensure the safety of all workers and the public. The Contractor shall also instruct all workers and maintain strict control of construction activity to protect and maintain the integrity of the Site. The Contractor, as a part of his/her safety program, shall maintain at the job Site, safety equipment applicable to the Work as prescribed by the governing safety authorities and all articles necessary for giving first aid to the injured.

G. The Contractor shall inform all workers and the public visiting the Site of the potential for exposure to asbestos contaminated material from drill cuttings, excavations, and trenches and the importance of safety precautions to ensure the safety of all workers and the public.

H. The Contractor shall submit a PDF copy of the Site-specific Health and Safety Plan in accordance with Section 01 33 00 – Submittal Procedures. The Contractor shall submit any revisions to the Site-specific Health and Safety Plan occurring after commencement of work. Failure on the part of the Contractor to follow the plan or to continue any Work in an unsafe manner may result in suspension of the Work by the Contract Administrator. The Contractor shall not be entitled to extra compensation for health and safety related suspensions, nor shall the contract completion date be extended:

1. The Contractor shall perform whatever Work is necessary for safety and be solely and completely responsible for conditions of the Site, including safety of all persons (including employees of the Owner, Contract Administrator, Tenants, any Site visitors, and Contractor) and property during the Contract period. This requirement applies continuously and is not limited to normal working hours.

2. No Work can commence on Site until the Contractor has submitted their Site-specific Health and Safety Plan to the Contract Administrator and received written confirmation of receipt.

1.05 SPECIAL SAFETY PROVISIONS

A. The Contractor shall inform employees and subcontractors and their employees of the potential danger in working on and near landfills.

B. The Contractor shall provide for the protection of employees and all others from fire, explosion, or asphyxiation caused by any gases encountered during construction and landfill leachate emitted from, and present within, the existing Landfill.

C. The Contractor shall be familiar with the following document: “A Compilation of Landfill Gas Field Practices and Procedures”, health and safety section prepared by the SWANA Landfill Gas Management Division August 2011. Copies

may be obtained from SWANA at 1100 Wayne Avenue – Suite 650, Silver Springs, Maryland 20910, telephone number (301) 589–7068.

D. The Contractor is advised that the construction of this project is being performed in and adjacent to municipal solid waste (MSW). During construction activity, the potential exists to puncture containers that could become explosive, release pockets of landfill gas under pressure, release fluids that could be contaminated, create surface subsidence by shifting MSW and other types of hazards. Exposure to decaying wastes is possible during this Work. Exposure may also include possible contact with leachate, asbestos, inhalation of landfill gas, explosion, pathogenic bacteria, and other exposure risks.

E. As these buried materials decompose, they will generate gas, which typically consists of carbon dioxide, methane, and trace amounts of other gases, including but not limited to hydrogen sulfide, dependent upon the composition of the buried materials. These gases normally vent to the atmosphere through the cover soils and can migrate laterally through soil and waste to adjacent areas depending on Site and weather conditions.

F. Landfill gases have the potential to create hazardous conditions if not controlled or recognized. Some of the hazards include:

1. Fires may start spontaneously from exposed and/or decomposing MSW.
2. Fires and explosions may occur from the presence of methane gas.
3. Landfill gases which may cause an oxygen deficiency in trenches, manholes/catch basins, and other structures.
4. Hydrogen sulfide, a highly toxic and flammable gas, may be present.
5. Possible caving of trenches and excavations when working over or in MSW fills.
6. Possible exposure to asbestos contaminated material brought to the surface of the landfill as a result of the excavation process.

G. Smoking is not permitted at the Site. The Contractor is responsible for ensuring that the Contractor’s workers and subcontractor’s workers do not smoke at the site.

H. Any MSW exposed during the construction shall be covered as soon as possible after exposure with at least a 300 mm (12–inch) layer of soil if relocation is not planned for the same day, or as otherwise approved by the Contract Administrator in writing. In no event shall MSW remain exposed overnight.

I. No arc or gas welding shall be permitted in trenches, enclosed areas, or over MSW unless performed in specially ventilated and secured areas of the Site tested and approved by the Contractor’s health and safety officer.

J. Construction equipment used in excavating activities and/or MSW removal operations shall be equipped with vertical exhaust and spark arrestors.

K. Electric motors utilized in excavation areas and below ground, shall be explosion proof.

1.06 SANITATION

A. The Contractor shall provide the following:

1. Break Area

a. Breaks will be taken in a clean zone away from the active Work area. No smoking, eating, drinking, or gum or tobacco chewing will be permitted in the Work area.

2. Potable Water

a. An adequate supply of potable water will be provided at the break area.

b. Portable containers used to dispense drinking water will be capable of being tightly closed and will be equipped with a tap dispenser.

c. Water will not be consumed directly from the container or dipped from the container.

d. Containers used for drinking water will be clearly marked and will not be used for any other purpose.

e. Disposable cups will be supplied; both a sanitary container for unused cups and a receptacle for disposing of used cups will be provided.

3. Sanitary Facilities

a. Access will be provided to wash facilities before eating or drinking.

4. Lavatory

a. If permanent toilet facilities are not available, an appropriate number of portable chemical toilets will be provided.

5. Trash Collection

a. Trash collected in the support and break areas will be disposed of as directed by the Contract Administrator. Labeled trash receptacles will be set up in the support and break areas.

## PART 2 PRODUCTS

2.01 NOT USED

## PART 3 EXECUTION

3.01 NOT USED

**** END OF SECTION ****

# Section 01 11 00 – Summary of Work

## PART 1 GENERAL

1.01 SECTION INCLUDES

A. Descriptions of items to be delivered within this contract.

B. Related Information: See Measurement and Payment Specification 01 20 00 for description of payment items. Payment items follow the Schedule of Quantities and Prices in the tender submittal.

C. Work set out in the Schedule of Quantities and Prices includes, but is not limited to, the descriptions set out in the Scope of Work.

1.02 DETAILED SCOPE OF WORK

A. The detailed scope of work is organized in accordance with the Schedule of Quantities and Prices (SOQ) included in the Tender Documents.

1.03 ITEM 1 OF SOQ – CONTRACT CONSIDERATIONS

A. Item 1.01 – Mobilization and Demobilization

B. Item 1.02 – Performance and Labour & Materials Bonds

C. Item 1.03 – Insurance

D. Item 1.04 – Health and Safety Plan

E. Item 1.05 – Traffic Management

F. Item 1.06 – Survey, Submittals, Record Drawings (and Permits, as required)

1.04 ITEM 2 OF SOQ – EARTHWORKS

A. Item 2.01 – Clear, Grub, Strip and Stockpile: Transfer Station Area and Frontage Road

B. Item 2.02 – Waste Excavation to Subgrade Incl. Loading, Hauling, and Disposal at Active Face and Coordination with Landfill Operations

C. Item 2.03 – Common Excavation of Subgrade Incl. Loading, Hauling, and Stockpiling of Excess Material for Operational Use at Specified Location

D. Item 2.04 - Supply, Place, and Compact Granular Fill to Reach Subgrade Contours

E. Item 2.05 – Subgrade Preparation Incl. Proof Rolling and Compaction

F. Item 2.06 – Supply and Place 150mm of Topsoil Over Sloped Transfer Station Areas

G. Item 2.07 – Hydraulic Seeding

1.05 ITEM 3 OF SOQ – LOCK BLOCK Z-WALL

A. Item 3.01 – Supply, Place, and Compact 25mm Well Graded Base Course Beneath Z-Wall

B. Item 3.02 – Supply and Install 25-75mm Drainage Gravel Behind Z-Wall for Pore Pressure Relief c/w PVC Drain Pipe, Cleanouts, and Geotextile Wrap

C. Item 3.03 – Supply and Place Type 1 Lock Blocks for Transfer Station Z-Wall (1500mm x 750mm x 750mm)

D. Item 3.04 – Supply and Place Type 1 Lock Blocks for Transfer Station Z-Wall (750mm x 750mm x 750mm)

E. Item 3.05 – Supply, Place and Compact Clean Structural Fill Behind Z-Wall

F. Item 3.06 – Supply and Install Tensar Uniaxial Geogrid Behind Z-Wall c/w Geogrid Lock Block Anchors

G. Item 3.07 – Supply and Install 100 x 100 mm Pressure-Treated Wooden Guide Rails on Z-Wall Bays

H. Item 3.08 – Construct Upper 7500 x 3750 mm Reinforced Concrete Pad (Bays 1 to 10) c/w Granular Base, 19mm Minus Crushed Gravel, Concrete Slab and Reinforcement, and Expansion Joints

I. Item 3.09 – Construct Lower 7500 x 3750 mm Reinforced Concrete Pad (Bays 1 to 10) c/w Granular Base, 19mm Minus Crushed Gravel, Concrete Slab and Reinforcement, and Expansion Joints

J. Item 3.10 – Deconstruct Existing Organics Transfer Station Bay and Install Components in Bay ’ incl. Disposal Gate, Guard Rail, and Spill Flap

K. Item 3.11 – Supply and Install Railings and Gates for Bays 3-10 (Hot-Dip Galvanized)

L. Item 3.12 – Supply and Install Disposal Gate, Guard Rail, and Spill Flap for ‘Bay 2’ Organics Bin (Hot-Dip Galvanized)

M. Item 3.13 – Supply and Install Type 2 Lock Blocks for U-Bays (8 Bays) (1500mm x 750mm x 750mm)

1.06 ITEM 4 OF SOQ – SCALE AND FRONT END

A. Item 4.01 – Construct Reinforced Concrete Scale Foundations incl. Subgrade Preparation and 19mm Minus Base

B. Item 4.02 – Provide Geotechnical and Structural QAQC and Testing by Third Party

C. Item 4.03 – Supply and Install 80' Long and 11' Wide Above-Ground Vehicle Weighing Scale

D. Item 4.04 – Supply and Install Scale Operating Software - Compatible with Existing Data Management Software Run by RDCK

E. Item 4.05 – Construct Asphalt Access Ramps c/w 19mm Minus Crushed Gravel, Asphalt, and Level Concrete Approach

F. Item 4.06 – Supply and Install Type 1 Lock Blocks for Asphalt Access Ramps (1500mm x 750mm x 750mm)

G. Item 4.07 – Supply and Install Full Length Guard Rails on Both Sides of New Inbound Scale

1.07 ITEM 5 OF SOQ – SURFACE WATER MANAGEMENT SYSTEM

A. Item 5.01 – Construct 350mm Surface Water Ditching incl. 450mm Thick Layer of 25kg Rip Rap

B. Item 5.02 – Construct 600mm Surface Water Ditching incl. 450mm Thick Layer of 25kg Rip Rap

C. Item 5.03 – Supply and Install 300mm dia. HDPE Double-Wall Corrugated Culvert

D. Item 5.04 – Supply and Install 450mm dia. HDPE Double-Wall Corrugated Culvert

1.08 ITEM 6 OF SOQ – ELECTRICAL

A. Item 6.01 – Power & Communication Systems - Attendant Building #1

B. Item 6.02 – Power & Communication Systems - Attendant Building #2

C. Item 6.03 – Power - Well Pump

D. Item 6.04 – Power - Gate Entry (North)

E. Item 6.05 – Power - Gate Entry (South)

F. Item 6.06 – Site Security System - Attendant Building #1

G. Item 6.07 – Site Lighting - Weigh Scale

H. Item 6.08 – Site Lighting - Gate Entry (North)

I. Item 6.09 – Site Lighting - Gate Entry (South)

J. Item 6.10 – Site Lighting - Attendant Building #2

K. Item 6.11 – Site Lighting - Attendant Building #1

L. Item 6.12 – Site Lighting - Roadway & Sorting Bins

1.09 ITEM 7 OF SOQ – ROADS, TRAFFIC, AND SIGNAGE

A. Item 7.01 – Construct Upper Asphalt Pad and Paved Road Access System c/w Components

a) – High-Strength Woven Geotextile

b) – 300mm Thick Coarse Granular Road Base

c) – 100mm Thick 19mm Minus Crushed Gravel

d) – 75mm Thick Asphalt

B. Item 7.02 – Construct Lower Gravel Pad and Access System c/w Components

a) – 300mm Thick Coarse Granular Road Base

b) – 100mm Thick 19mm Minus Crushed Gravel

C. Item 7.03 – Supply and Install Access Gate at New North Entrance

D. Item 7.04 – Supply and Install No-Post Barriers

E. Item 705 – Supply and Install Traffic Signage

1.10 ITEM 8 OF SOQ – SEPTIC FIELD AND HOLDING TANK

A. Item 8.01 – Supply and Install New 4" CSA Sewer Line c/w Cleanouts, Fittings, and Tie-in to Existing 4" Sewer Pipe Per BC Plumbing Code

B. Item 8.01 – Supply and Install Holding Tank at Attendants Shack #2 c/w Ultrarib/Polylok Riser and Tank Alert EZ Alarm

C. Item 8.01 – Construct Gravity Dispersal Field c/w Components

a) – 6-Hole Distribution Box c/w 3 Poly Lok Rotoflow Equalizers and Solid Walled Pipe (Min. 1% Slope)

b) – Gravity Seepage Bed c/w Infiltrative Surface Prep, 300 mm Thick Coarse Aggregate, Lighweight Non-Woven Geotextile, and 150-300 mm Thick Cover Soil

c) Typ. 4" Clean-Outs (Test/Flush Caps) c/w Adaptors, Caps, Fittings, and Access Box

d) 3-4" CSA SCH40 PVC Perforated Sewer Pipe (Slope <0.2%) c/w Pipe Observation Ports

D. Supply and Install Septic Tank at Scale House c/w Ultrarib/Polylok Riser and Effluent Filter with Extension Handle

1.11 ITEM 9 OF SOQ – SITE INFRASTRUCTURE

A. Item 9.01 – Relocate and Install Existing Attendant Shack c/w Utilities

B. Item 9.02 – Supply and Install Stainless Steel Staircase for Z-Wall Accessibility

C. Item 9.03 – Construct Water Forcemain from Existing Onsite GW Well c/w HDPE Pipe, Pipe Embedment and Compaction, Caution Tape, Backfill and Compaction, and Tie-in to Attendant Shack #1 & #2, Scale House, and Standpipes (x2)

D. Item 9.04 – Construct Clean Water Stand Pipe

E. Item 9.05 – Flushing, Testing, and Commissioning for Water Lines

F. Item 9.06 – Supply and Install Site Washroom (Job Jon) and Tie-In to Holding Tank

G. Item 9.07 – Remove and Dispose of Existing Fence (may be disposed in the Ootischenia Landfill)

H. Item 9.08 – Install New Electric Fence (incl. all wires, posts, staples, insulators, testing, etc.)

**** END OF SECTION ****

# Section 01 14 00 – Work Restrictions

## PART 1 GENERAL

1.01 SECTION INCLUDES

A. This section addresses restrictions and Owner requirements while setting up, leaving the Site, and proceeding with the Work.

1.02 COMMUNICATIONS

A. All matters of the Contract performance as specified throughout the Contract Documents following Contract award will require the approval of the Contract Administrator as the representative of the Owner.

B. All Contract relevant matters and decisions carried out without the involvement of the Contract Administrator must be reported to the Contract Administrator in writing within 24 hours.

1.03 ACCESS AND EGRESS

A. Design, construct, and maintain temporary “access to” and “egress from” Work areas, including stairs, runways, ramps or ladders and scaffolding, independent of finished surfaces and in accordance with relevant municipal, provincial, and other regulations.

B. The Owner operates the Landfill six (6) days per week. The access road network shall not be disturbed during regular Landfill working hours. The Owner will consider single lane traffic and road closures on a case-by-case basis but only when deemed advantageous for the Owner, as determined, and approved in writing by Contract Administrator.

C. The landfill active area includes a network of operational roads used by the Owner.

D. Access to the landfill disposal areas must always be available for the Owner use.

1.04 TIME RESTRICTIONS

A. Time Restrictions for Performing Contract Work: Refer to General Conditions of the Contract.

B. The Contractor’s work hours and schedule will be coordinated with the Contract Administrator.

C. The Contractor shall make all necessary provisions for night work or single lane traffic, as required.

## 1.05 USE OF SITE AND FACILITIES

A. Execute Work with the least interference or disturbance to normal use of premises. Coordinate with the Contract Administrator to facilitate Work as stated.

B. Unless approved in writing by the Contract Administrator, the Contractor shall not proceed with any Work that is in breach of the Contract Documents including and not limited to Work without approved submittals, approved survey data, scheduled outside of the approved Construction Schedule.

C. Maintain existing access and services to Site and provide for personnel and vehicle access.

D. Where site security is reduced by Work, the Contractor shall provide means to maintain security.

E. At the completion of the project, all areas impacted by construction activities shall be reinstated to their original condition, as solely determined by Contract Administrator.

F. During the execution of the work, all areas impacted by construction activities, including roads, stockpile areas, ditches, and all other infrastructure in use, shall be maintained as originally encountered. The Contractor shall implement such measures as requested by the Contract Administrator, including scraping, sweeping, dredging, excavating, and all other cleaning activities, at no additional cost to the Owner. Failing to implement such measures requested by Contract Administrator, may result in Owner performing the work, at the Contractor's cost.

## 1.06 EXISTING SERVICES

A. The Contractor is responsible for contacting all respective utility Owners to gain approval for any interventions and/or locating all existing utilities before commencing work as best as possible. The Hydrovac system shall be used when working in the vicinity of known existing infrastructure when access is available to help avoid damaging such infrastructure; however, is such instances, the Contractor is responsible for having a contingency plan in place to restore service in consultation and approval of the utility Owner.

B. Notify Contract Administrator, affected businesses, and utility companies of intended interruption of services and obtain required permission from the Contract Administrator in writing. The Work may involve construction adjacent to and over existing hydro, gas, water, telephone, sewer, leachate and other utilities. The Contractor must obtain the necessary permits and approvals from the utility companies and present to the Contract Administrator prior to starting the Work.

C. The Contractor shall provide a minimum of five (5) working day notice and details to all other existing Site contractors, for all Work expected to interfere, or located in the proximity of the Site facilities or work carried by such contractors.

D. Where work involves breaking into or connecting to existing services, provide the Engineer 72-hours (3 days) for the necessary interruption of access, mechanical or electrical services throughout course of Work. Keep the duration of such interruptions to a minimum. Carry out interruptions after the normal working hours for all occupants.

E. Construct barriers in accordance with Section 01 50 00 - Temporary Facilities and Controls.

F. Provide adequate bridging over trenches and crossroads to permit normal traffic.

G. Where unknown services are encountered, immediately advise the Contract Administrator and confirm service findings in writing.

H. Protect, relocate or maintain existing active services. When inactive services are encountered, temporarily cap-off in a manner approved by authorities having jurisdiction.

I. Record in as-built drawings and/or surveys the locations of maintained, re-routed and abandoned service lines if located in the course of Work.

1.07 SPECIAL REQUIREMENTS

A. Ensure that Contractor personnel employed on-Site become familiar with and obey regulations including safety, fire, traffic, and security regulations.

B. Keep within limits of Work and avenues of ingress and egress.

C. The Contractor must comply with smoking restrictions for the Site.

## PART 2 PRODUCTS

2.01 NOT USED

## PART 3 EXECUTION

3.01 NOT USED

**** END OF SECTION ****

# Section 01 20 00 – Measurement and Payment

## PART 1 GENERAL

1.01 SECTION INCLUDES

A. This section summarizes the work included in each bid item listed on the Schedule of Quantities and Prices and defines the methods and payment for each payment item.

1.02 MEASUREMENT FOR PAYMENT QUANTITIES

A. Measurement for payment will be performed by the Contractor according to standard measurement procedures and based on actual units of work performed or installed. The method of measurement is described under each bid item.

B. The Contractor shall make all interim measurements and determine all interim quantities and amounts of complete work done under the Contract. At the time measurements are made for quantity determinations, the Owner or its representative will be present to verify such measurements.

C. The Contractor shall provide sufficient advanced notice for the date and time of measurements and allow the Owner or its representative the opportunity to observe measurements and/or conduct independent measurements for establishing quantities for progress payments.

D. Description of Methods for Measurement of Quantities

1. For those items to be measured by the in-place area, measurement shall be employed by the most practical means as determined by the Owner or its representative.

2. For those items measured by the in-place area with a neat line measurement for width, the area will be determined by the in-place horizontal measure for length multiplied by the fixed plan dimension for width as shown on the Contract Documents.

3. For items specified to be measured by a volume unit (e.g. cubic metres), the Owner or its representative will use one of the following methods for measurement:

a. For those items to be measured by the in-place volume, measurement shall be determined by detailed topographic survey methods. The quantity for payment shall be calculated as a difference between the original ground surface (prior to construction) and the final ground surface (after construction is completed). The volume shall be calculated by a cut and fill analysis using AutoCAD Civil 3D software. For volumes of excavation or embankment which are small or otherwise impractical to measure quantities by a cut and fill analysis, an average-end-area method shall be used as specified by the Owner or its representative.

b. For those items measured by the in-place area with a neat line measurement for depth, the volume will be determined by the in-place horizontal measure for area multiplied by the fixed plan dimension for depth as shown on the Contract Documents.

c. For those items measured by load counts of the hauling vehicle, the volume will be determined by the dimensions of each hauling vehicle. Each hauling vehicle will be measured by the Contractor, to the satisfaction of the Owner or its representative, to establish the number of cubic meters carried by that vehicle when full. All haul vehicles shall be numbered or otherwise uniquely marked for identification purposes.

For each load delivered to the site, the Contractor shall provide to the Owner or its representative the time of delivery, a ticket indicating the vehicle number or other identification, material type, date, time of delivery, reference to borrow source location, and intended use of material (i.e., subgrade, embankment, backfill, cover soil, drainage aggregate, drain rock, embedment, etc.)

In addition to vehicle tickets, the Contractor shall provide to the Owner daily a summary of vehicle loads delivered that day listing the number of loads, type of material carried by each vehicle, and intended use of each type of material.

Subsequent loads will be checked at the option of the Owner or its representative, and adjustments will be made for partial loads. Where a discrepancy in the initial vehicle capacity determined is encountered, the Owner or its representative may elect to adjust all previous loads received by the vehicle or if applicable since the last check date.

4. For items specified to be measured by weight, weight will be determined using truck scales approved by the Owner. This may be available on site, or the Contractor may be required to utilize other scales.

5. Where lump sum is the specified pay unit, complete payment for the work described to be done, completed, and accepted, without further measurement will be used.

E. No payment will be made for:

1. Work performed or materials placed outside of limits indicated in the Drawings or established by the Owner.

2. Materials wasted, used, or disposed of in a manner not called for under the Contract.

3. Rejected materials (including material rejected after it has been placed, if the rejection is due to the Contractor's failure to comply with the provisions of the Contract).

4. Hauling and placement of materials from or to interim stockpiles.

5. Hauling and disposing of rejected materials.

6. Material on hand after completion of work.
7. Any other work or material when payment is contrary to any provision of the Contract.
8. Work that has been buried and/or concealed without inspection and approval (immediately prior to, and during burying and/or concealment) from Contract Administrator
9. Work that has not received the required documentation and approval required through the submittal process.
10. Work that has not been surveyed and documented for as-built records.

1.03 INSTRUCTIONS REGARDING FORM OF BIDDER

A. Work completed under this Contract will be paid for at the lump sum prices and unit prices set out in the Schedule of Quantities and Prices.

B. Incorporate all costs associated with finding, procuring, and supplying all materials and performing all work specified herein in the prices set out in the Schedule.

C. Any claim by Contractor for extra payment on grounds that work performed or materials supplied in accordance with the Drawings and/or specifications could not be properly charged to items listed in the Schedule will not be considered by the Owner.

D. If the Schedule of Quantities and Prices does not include a pay item that is shown in the Drawings and/or specifications (by either direct mention and/or implication), the Contractor shall include costs and allocate to the pay item which pertains most closely.

E. Prorate costs of a general nature that do not pertain to any one item among all items except for Provisional Items.

F. Payment will only be made for actual quantities supplied and installed during the Contract.

1.04 PROGRESS PAYMENTS

A. The Contractor shall submit an Application for Payment monthly in accordance with the General Conditions of Contract and in a format acceptable to Owner.

B. The Owner will pay the Contractor on or before the last day of the next month following the period covered by the Certificate.

C. The Owner will hold back ten (10) percent of the amount of each Certificate in accordance with the Builder’s Lien Act.

D. The Owner will in addition, and where reasonably justified, make special payment hold backs as provided for in the General Conditions of Contract.

E. With every Monthly Application for Payment, the Contractor shall submit all relevant survey records for the current Progress Claim and a survey record summary for all completed work, in a form acceptable to the Owner. Failing to provide such records, could invalidate the Progress Claim and payment may not be considered.

F. The Contractor shall provide a Statutory Declaration and a WCB Clearance Letter in accordance with the General Conditions of Contract for all progress payment certificates except the first one.

1.05 FORCE ACCOUNT WORK

A. Work may be required which is not covered by the Contract.

B. All Force Account work shall be carried out in accordance with the General Conditions of the Contract.

C. All Force Account work carried out must have prior written approval from the Owner. All hours of work carried out under this item must be approved on the day the work is carried out. It is the Contractor's responsibility to obtain approval each day that work is carried out under this item. If these approvals are not received prior to commencement of the work and at the end of each day that the work is carried out, payment may not be considered.

1.06 DESCRIPTION OF PAYMENT ITEMS

A. This section summarizes the work included for each of the items listed in the Schedule of Quantities and Prices, and how each will be measured.

B. Item 1 of SOQ – General Contract Considerations

1. Item 1.01 – Mobilization and Demobilization

a. Measurement: Lump Sum

b. Payment: Mobilization / demobilization is limited to 10% of the project cost and will be paid by lump sum. Fifty percent (50%) of the value will be paid on completion of mobilization to the Site, as determined by the Contract Administrator (when equipment is on Site and a functional Site office is established), and the fifty percent (50%) balance will be paid when all outstanding deficiencies have been addressed and all structures, materials, and equipment have been demobilized from the Site.

c. Includes: All labour, equipment, materials, and associated costs for transportation of the Contractor's personnel, equipment, and operating supplies to and from the Site, establishing and maintaining of offices, buildings, and other necessary general facilities for

the Contractor's operations at the Site. Also includes provisions of a dedicated Site office room equipped with AC, heat, desk, office chair, power connection, and internet for the Contract Administrator's use.

2. Item 1.02 – Performance and Labour & Materials Bonds

   a. Measurement: Lump Sum

   b. Payment: Will be paid as a lump sum value after the Contract is signed and the Bonds are submitted to the Owner.

   c. Includes: All labour, equipment, and materials required to obtain bonding for Work associated with this Contract. The bonds shall cover the entire duration of the Contract.

3. Item 1.03 – Insurance

   a. Measurement: Lump Sum

   b. Payment: Will be paid as a lump sum value after the Contract is signed and proof of insurance meeting the insurance requirements of the Contract is submitted to the Owner.

   c. Includes: All labour, equipment, and materials required obtain insurance for Work associated with this Contract. Insurance shall cover the entire duration of the Contract.

4. Item 1.04 – Health and Safety Plan

   a. Measurement: Lump Sum

   b. Payment: Will be paid as a lump sum value. Fifty percent (50%) of the value will be paid after the Health and Safety Plan is received and reviewed by the Contract Administrator and implemented by the Contractor. The fifty (50% balance) will be prorated for the duration of the Contract as per the Contract Administrator's estimate.

   c. Includes: All labour, equipment, and materials required to prepare and implement the health and safety requirements including the on site safety officer and safety equipment for the duration of the Work for all areas that it applies to. Also includes costs associated with Prime Contractor responsibilities for the Site, which involves coordination of safety issues with all applicable parties conducting on-Site Works as per WorksafeBC requirements.

5. Item 1.05 – Traffic Management

a. Measurement: Lump Sum

b. Payment: Will be paid as a lump sum value. Thirty percent (30%) of the value will be paid after the Traffic Management Plan is received, reviewed, and approved by the Contract Administrator and implemented by the Contract Administrator. The seventy (70%) balance will be prorated for the duration of the Contract as per the Contract Administrator's Estimate.

c. Includes: All labour, equipment, and materials required to prepare, submit, and implement the Traffic Management Plan for the duration of the Work for all areas it applies to.

Includes all costs associated with Single Lane Alternating Traffic as required, limited to a single location and a maximum of 200m at any given time, and includes all costs associated with qualified personnel, flaggers, traffic lights, traffic markers, and traffic signs as necessary to maintain traffic movement.

Day-to-day operations of the landfill shall not be interrupted by the Contractor, and provisions for bypassing the queue at the Site entrance when hauling materials delivered to site shall be made. If required by the Contractor, the site scale may be available for use.

Use of the scale by the Owner must be maintained at all times, unless approved by the Contract Administrator. Any closure of the scale must be pre-approved by the Contract Administrator, and the Contractor is required to provide sufficient evidence that closure is necessary for the Work to proceed, along with a plan to manage traffic accordingly.

6. Item 1.06 – Survey, Submittals, Record Drawings (and Permits, as required)

a. Measurement: Lump Sum

b. Payment: Payment will be made as a lump sum value. Seventy percent (70%) will be prorated for the duration of the Contract as per the Contract Administrator's estimate. The thirty percent (30%) balance of the value will be paid at the completion of the Contract after all records and as-built information has been received and accepted by the Contract Administrator.

c. Includes: All labour, equipment, and materials required to perform surveys, measurements, and computations required by the Contract. The Contractor is required to verify all survey control points prior to starting Work, and to provide field engineering services and close out procedures.

The Contractor is responsible for establishing locations, elevations, lines, grades, and levels necessary for construction of structures and systems, including up to three (3) different layouts and revisions for each construction item as deemed necessary by the Contract Administrator. Contractor to locate and mark (stake) in the field all existing utilities and periodically verify layouts.

Construction survey records and supporting data for progress payments shall be submitted to the Contract Administrator with each payment certificate. This item shall also include preparation and submission of the record drawings as per the Contract Documents.

The Contractor should be aware that aerial survey methods are difficult at the Ootischenia Landfill Site due to the proximity to the airport.

C. Item 2 of SOQ – Earthworks

1. Item 2.01 – Clear, Grub, Strip and Stockpile: Transfer Station Area and Frontage Road

a. Measurement: Calculated quantities based on topographic survey of the limits of the completed work, conducted by the Contractor and verified by the Contract Administrator.

b. Payment: Per square meter ($m^2$)

c. Includes: All labour, equipment, and materials required to clear, grub, and strip the expanded transfer station and frontage road area. Includes stockpiling of stripped material as directed by the Contract Administrator. Survey of the stripped area should be completed to allow for accurate quantities of excavation to be determined.

2. Item 2.02 – Waste Excavation to Subgrade Incl. Loading, Hauling, and Disposal at Active Face and Coordination with Landfill Operations

a. Measurement: Calculated quantities based on load counts for materials transported to the active face. Contractor

and Contract Administrator to determine volume of haul trucks in accordance with these Specifications, and Contractor to provide load counts at the end of each day of Work.

b. Payment: Per cubic meter ($m^3$)

c. Includes: All labour, equipment, and materials required to excavate, load, and haul material containing historic waste to the active landfill face. Some of the transfer station upgrade area has historically been utilized for waste disposal, however the exact limits of this activity are undefined and the Contractor is responsible for separation of contaminated and clean excavated material. Waste will be intermingled with soils, however the intent is not to separate all of the waste and soil, but clean soil should not be relocated to the active face. The Contractor is not responsible for spreading and compaction of the material within the landfill, however hauling operations must be coordinated with the landfill operator.

3. Item 2.03 – Common Excavation of Subgrade incl. Loading, Hauling, and Disposal at Active Face and Coordination with Landfill Operations

a. Measurement: Calculated quantities based on topographic survey of the completed work, conducted by the Contractor and verified by the Contract Administrator. Topographic surveys should be completed before excavation begins (after stripping) and before import of granular fill begins.

b. Payment: Per cubic meter ($m^3$)

c. Includes: All labour, equipment, and materials required to excavate common material from the transfer station upgrade area, and to redistribute and compact to design elevations and grades as shown on the Contract Drawings. Handling of material and temporary stockpiling is considered incidental to the work. Clean excavated material that is sandy in nature shall be utilized to shape the eastern infiltration area first, to allow for a relatively pervious material to infiltrate water.

Some of the common material excavated will be required for the Septage Facility Upgrades, which will be completed by others under another Contract. Contractor may be required to load, haul, and dump

material at this on-site location at the direction of the Contract Administrator.

4. Item 2.04 - Supply, Place, and Compact Granular Fill to Reach Subgrade Contours

    a. Measurement: Calculated quantities based on load counts of incoming material, as described in these Specifications. Contractor to provide load counts and tonnages of material imported at the end of each day of Work completed.

    b. Payment: Per cubic meter ($m^3$)

    c. Includes: All labour, equipment, and materials required to supply, place, and compact granular fill to achieve subgrade contours in the transfer station area. While the subgrade has been designed in a manner that balances the cut and fill, this item is intended to make up for the shortfall that will be realized due to unsuitable materials, waste, and use of material in the septage facility upgrade project.

    Any excess granular fill brought to site will not be included in payment, as determined by the Contract Administrator.

5. Item 2.05 – Subgrade Preparation Incl. Proof Rolling and Compaction

    a. Measurement: Calculated quantities based on topographic survey of the limits of the completed work, conducted by the Contractor and verified by the Contract Administrator.

    b. Payment: Per square meter ($m^2$)

    c. Includes: All labour, equipment, and materials required to prepare the subgrade for placement of the coarse granular road base, including compaction and proof rolling of the subgrade, along with excavation and replacement of unsuitable materials.

6. Item 2.06 – Supply and Place 150mm of Topsoil Over Sloped Transfer Station Areas

    a. Measurement: Calculated quantities based on topographic survey of the limits of the completed work, conducted by the Contractor and verified by the Contract Administrator.

    b. Payment: Per square meter ($m^2$)

    c. Includes: All labour, equipment, and materials required to supply and install a 150mm thick layer of topsoil in

the transfer station areas indicated on the Contract Drawings. Throughout construction, topsoil shall be protected from erosion, and equipment shall not be permitted to travel on the completed topsoil placement. Topsoil shall be well-suited for vegetation growth and shall conform to the standards specified in the Contract Documents.

7. Item 2.07 – Hydraulic Seeding

   a. Measurement: Calculated quantities based on topographic survey of the limits of the completed work, conducted by the Contractor and verified by the Contract Administrator.

   b. Payment: Per square meter ($m^2$)

   c. Includes: All labour, equipment, and materials required to supply and apply the seed, tackifier, and fertilizer mix as required in the Contract specifications within the transfer station sloped areas following placement of topsoil. The Contractor shall carefully review warranty requirements from the Contract Documents, as re-application of hydroseed may be required in areas where seed mixture fails to establish a vigorous grass cover in the first year.

D. Item 3 of SOQ – Lock Block Z-Wall

1. Item 3.01 – Supply, Place, and Compact 25mm Well Graded Base Course Beneath Z-Wall

   a. Measurement: Calculated quantities based on neat line limits of the completed work. Measurement will follow the linear alignment of the z-wall to the nearest whole meter.

   b. Payment: Per linear meter (LM)

   c. Includes: All labour, equipment, and materials required to supply, place and compact the 25mm Well Graded Base Course to 95% of the maximum modified proctor density to construct the z-wall foundation. The top of foundation gravels shall provide a smooth, even, and level surface for placement of the lock-block wall. Disturbance of in-situ material underneath the foundation shall be minimized, and loose or unsuitable material underneath the foundation shall be excavated and replaced with competent material as directed by the Contract Administrator.

2. Item 3.02 – Supply and Install 25-75mm Drainage Gravel Behind Z-Wall for Pore Pressure Relief c/w PVC Drain Pipe, Cleanouts, and Geotextile Wrap

    a. Measurement: Calculated quantities based on neat line limits of the completed work. Measurement will follow the alignment of the z-wall to the nearest whole meter.

    b. Payment: Per linear meter (LM)

    c. Includes: All labour, equipment, and materials required to supply and install the pore pressure relief system behind the z-wall including the PVC drainpipe, cleanouts, gravel, and geotextile wrap.

3. Item 3.03 – Supply and Place Type 1 Lock Blocks for Transfer Station Z-Wall (1500mm x 750mm x 750mm)

    a. Measurement: Per count of installation.

    b. Payment: Per each.

    c. Includes: All labour, equipment, and materials required to supply and place the full-size (1500mm x 750mm x 750mm) Type 1 Lock Blocks for the transfer station z-wall. Blocks shall be placed in a neat, level manner according to the z-wall alignment. The Contractor shall take care to protect the blocks from damage during installation, and proper lifting techniques and equipment shall be used.

4. Item 3.04 – Supply and Place Type 1 Lock Blocks for Transfer Station Z-Wall (750mm x 750mm x 750mm)

    a. Measurement: Per count of installation.

    b. Payment: Per each.

    c. Includes: All labour, equipment, and materials required to supply and place the half-size (750mm x 750mm x 750mm) Type 1 Lock Blocks for the transfer station z-wall. Blocks shall be placed in a neat, level manner according to the z-wall alignment. The Contractor shall take care to protect the blocks from damage during installation, and proper lifting techniques and equipment shall be used.

5. Item 3.05 – Supply, Place and Compact Clean Structural Fill Behind Z-Wall

    a. Measurement: Calculated quantities based on a neat line basis for placed fill.

    b. Payment: Per cubic meter ($m^3$)

    c. Includes: All labour, equipment, and materials required to supply, place, and compact the structural fill behind

the z-wall to 95% of the modified proctor density. Lifts shall be placed in maximum 300mm thicknesses, and placement shall be coordinated with installation of the uniaxial geogrid. The material to be used shall be submitted for approval by the Contract Administrator prior to placement.

6. Item 3.06 – Supply and Install Tensar Uniaxial Geogrid Behind Z-Wall c/w Geogrid Lock Block Anchors

    a. Measurement: Calculated quantities based on a neat line basis for placed uniaxial geogrid.

    b. Payment: Per square meter ($m^2$)

    c. Includes: All labour, equipment, and materials required to supply and place the uniaxial geogrid within the lock block z-wall. Also includes the geogrid lock-block anchors to ensure the geogrid is attached to the wall.

7. Item 3.07 – Supply and Install 100 x 100 mm Pressure-Treated Wooden Guide Rails on Z-Wall Bays

    a. Measurement: Per unit installed.

    b. Payment: Per each.

    c. Includes: All labour, equipment, and materials required to supply and construct the pressure treated wood guide rails on the z-wall bays as per the Contract Drawings.

8. Item 3.08 – Construct Upper 7500 x 3750 mm Reinforced Concrete Pad (Bays 1 to 10) c/w Granular Base, 19mm Minus Crushed Gravel, Concrete Slab and Reinforcement, and Expansion Joints

    a. Measurement: Per unit installed.

    b. Payment: Per each.

    c. Includes: All labour, equipment, and materials required to construct the reinforced concrete pads on the upper side of the lock block z-wall. Includes supply, placement and compaction of the granular base, all formwork, reinforcement and expansion joints as shown on the Contract Documents.

9. Item 3.09 – Construct Lower 7500 x 3750 mm Reinforced Concrete Pad (Bays 1 to 10) c/w Granular Base, 19mm Minus Crushed Gravel, Concrete Slab and Reinforcement, and Expansion Joints

    a. Measurement: Per unit installed.

    b. Payment: Per each.

c. Includes: All labour, equipment, and materials required to construct the reinforced concrete pads on the lower side of the lock block z-wall. Includes supply, placement and compaction of the granular base, all formwork, reinforcement and expansion joints as shown on the Contract Documents.

10. Item 3.10 – Deconstruct Existing Organics Transfer Station Bay and Install Components in Bay 1 incl. Disposal Gate, Guard Rail, and Spill Flap

    a. Measurement: Lump Sum.

    b. Payment: Payment will be made on a lump sum basis upon completion of the work, and once the new transfer station organics bay is operational.

    c. Includes: All labour, equipment, and materials required to deconstruct the existing organics transfer station bay and install the railing components in Bay 1 of the new transfer station, including the disposal gate, guard rail, and spill flap. Any damaged components will be replaced at the Contractor's cost. Work should be scheduled such that use of the organics bin is available to the Owner on a continuous basis, unless otherwise approved by the Contract Administrator. Gates and railings must be in place for the Owner to operate the existing transfer station in accordance with WorksafeBC requirements.

11. Item 3.11 – Supply and Install Railings and Gates for Bays 3-10 (Hot-Dip Galvanized)

    a. Measurement: Lump Sum.

    b. Payment: Payment will be made on a lump sum basis upon completion of the railing work.

    c. Includes: All labour, equipment, and materials required to supply, fabricate, and install the railings and gates on the lock-block z-wall for Bays 3 to 10 according to the Contract Documents. Includes connection to and integration with organics bin railing in Bay 2.

12. Item 3.12 – Supply and Install Disposal Gate, Guard Rail, and Spill Flap for 'Bay 2' Organics Bin (Hot-Dip Galvanized)

    a. Measurement: Lump Sum.

    b. Payment: Payment will be made on a lump sum basis upon completion of the railing work.

    c. Includes: All labour, equipment, and materials required to supply, fabricate, and install the railings and gates

on the lock block z-wall for Bay 2 according to the Contract Documents. Includes connection and integration with relocated railing installed in Bay 1.

13. Item 3.13 – Supply and Install Type 2 Lock Blocks for U-Bays (8 Bays) (1500mm x 750mm x 750mm)

    a. Measurement: Per count of installation.

    b. Payment: Payment each.

    c. Includes: All labour, equipment, and materials required to supply and install the full size Type 2 lock blocks to create 8 U-bays for material drop off. The unit amount in the schedule of quantities has been provided for pricing purposes, and bays shall be constructed as directed by the Contract Administrator to the Owner's specifications. Blocks shall be placed in a neat, level fashion and shall be lifted using only approved lifting methods and equipment.

## 1.07 ITEM 4 OF SOQ – SCALE AND FRONT END

1. Item 4.01 – Construct Reinforced Concrete Scale Foundations incl. Subgrade Preparation and 19mm Minus Base

    a. Measurement: Lump sum.

    b. Payment: Will be paid on a lump sum basis upon completion of the scale foundation work and submission of concrete testing results to the Contract Administrator.

    c. Includes: All labour, equipment, and materials required to supply and install the concrete scale foundations as shown in the Contract Documents. Includes preparation of subgrade and supply, placement, and compaction of non-frost susceptible material as approved by the Contract Administrator. It is the responsibility of the Contractor to ensure that all foundations are constructed in accordance with the scale manufacturer's specifications.

2. Item 4.02 – Provide Geotechnical and Structural QAQC and Testing by Third Party

    a. Measurement: Lump sum.

    b. Payment: Will be paid on a lump sum basis upon completion of the scale foundation work and submission of concrete testing results to the Contract Administrator.

c. Includes: All labour, equipment, and materials required to conduct all geotechnical and structural quality assurance and quality control testing through a third party.

3. Item 4.03 – Supply and Install 80’ Long and 11’ Wide Above-Ground Vehicle Weighing Scale

   a. Measurement: Lump sum.

   b. Payment: Will be paid on a lump sum basis. 70% of the value will be paid upon installation of the scale and completion of the scale deck. The 30% balance will be paid upon installation and calibration of the load cells within the operating software.

   c. Includes: All labour, equipment, and materials required to supply and install one 40’ x 10’ scale, including scale decks, Load Cells, Load Risers, Digital Indicator, Home Run Cable including T-belting, Zeroing Sensors and On-deck Sensors, and necessary cables to connect the scale to the scale house. Also includes bolting, anchoring, wiring, and placement of load cells, programming of scale indicator, calibration, commissioning, and Measurement Canada Inspection as per the Contract Documents.

   Contractor to provide a 10-year complete warranty (parts, labour, and all expenses). Payment to include all incidental work to supply, install, and commission the scale. Item does not include scale operating equipment and software, such as traffic lights, computers, and controls.

   The RDCK has a preference for equipment from BC Scales as this is what is currently utilized at the site, however any alternatives will be considered during the Tender.

4. Item 4.04 – Supply and Install Scale Operating Equipment and Software - Compatible with Existing Data Management Software Run by RDCK

   a. Measurement: Lump sum.

   b. Payment: Will be paid on a lump sum basis upon completion of the installation and commissioning of all operating equipment and software

   c. Includes: All labour, equipment, and materials required to supply, install, and commission the operating equipment and software for the scale including traffic lights, computers, and appurtenances. The

Contractor will be required to work with RDCK staff to identify the exact components required for operation of the scale as per the Contract Documents.

5. Item 4.05 – Construct Asphalt Access Ramps c/w 19mm Minus Crushed Gravel, Asphalt, and Level Concrete Approach

    a. Measurement: Lump sum.

    b. Payment: Will be paid on a lump sum basis. Fifty percent (50%) of the balance will be paid upon completion of one of the access ramps, and the remainder will be paid upon completion of the other access ramp.

    c. Includes: All labour, equipment, and materials required to construct the scale access ramps, including supply, placement and compaction of the subgrade gravel, supply and installation of asphalt, and construction of the level concrete approach. Also includes supply and installation of the Type 1 Full Size (1500mm x 750mm x 750mm) Lock Blocks.

6. Item 4.06 – Supply and Install Type 1 Lock Blocks for Asphalt Access Ramps (1500mm x 750mm x 750mm)

    a. Measurement: Per count of installation.

    b. Payment: Payment each.

    c. Includes: All labour, equipment, and materials required to supply and install the full size Type 1 lock blocks on both sides of the asphalt access ramps to the inbound scale. The unit amount in the schedule of quantities has been provided for pricing purposes, and lock blocks shall be installed as directed by the Contract Administrator to the Owner's specifications. Blocks shall be placed in a neat, level fashion and shall be lifted using only approved lifting methods and equipment.

7. Item 4.07 – Supply and Install Full Length Guard Rails on Both Sides of New Inbound Scale

    a. Measurement: Lump sum.

    b. Payment: Will be paid on a lump sum basis upon complete installation of the guard rails.

    c. Includes: All labour, equipment, and materials required to supply and install the guard rails for the scale as per the manufacturer's specifications.

B. Item 5 of SOQ – Surface Water Management System

1. Item 5.01 – Construct 350mm Surface Water Ditching incl. 450mm Thick Layer of 25kg Rip Rap

   a. Measurement: Calculated quantities based on a neat line basis for constructed length of ditch. Length will be measured by topographic survey, conducted by the Contractor and verified by the Contract Administrator.

   b. Payment: Per Linear Meter (LM)

   c. Includes: All labour, equipment, and materials required to construct the 350mm deep surface water ditching, including supply and placement of the 25kg Rip Rap.

2. Item 5.02 – Construct 600mm Surface Water Ditching incl. 450mm Thick Layer of 25kg Rip Rap

   a. Measurement: Calculated quantities based on a neat line basis for constructed length of ditch. Length will be measured by topographic survey, conducted by the Contractor and verified by the Contract Administrator.

   b. Payment: Per Linear Meter (LM)

   c. Includes: All labour, equipment, and materials required to construct the 600mm deep surface water ditching, including supply and placement of the 25kg Rip Rap.

3. Item 5.03 – Supply and Install 300mm dia. HDPE Double-Wall Corrugated Culvert

   a. Measurement: Calculated quantities based on a neat line basis for installed length of culvert. Length will be measured by topographic survey, conducted by the Contractor and verified by the Contract Administrator.

   b. Payment: Per Linear Meter (LM)

   c. Includes: All labour, equipment, and materials required to supply and install the 300mm diameter HDPE Double-Wall Corrugated Culvert. Includes trenching, backfill, and compaction of aggregate as required, as well as any joining of culvert sections as per the manufacturer's specifications.

4. Item 5.04 – Supply and Install 450mm dia. HDPE Double-Wall Corrugated Culvert

   a. Measurement: Calculated quantities based on a neat line basis for installed length of culvert. Length will be measured by topographic survey, conducted by the Contractor and verified by the Contract Administrator.

   b. Payment: Per Linear Meter (LM)

c. Includes: All labour, equipment, and materials required to supply and install the 450mm diameter HDPE Double-Wall Corrugated Culvert. Includes trenching, backfill, and compaction of aggregate as required, as well as any joining of culvert sections as per the manufacturer's specifications.

C. Item 6 of SOQ – Electrical

1. Item 6.01 – Power & Communication Systems - Attendant Building #1

a. Measurement: Lump Sum

b. Payment: Will be paid on a Lump Sum basis upon completion of the Work.

c. Includes: All labour, equipment, and materials required to supply and install the power and communications systems for Attendant Building #1. Includes cables, conduit, and all appurtenances required to connect the power and communications systems to the existing scale, the existing service panel, and along the entrance road. Includes adjustment of existing floodlight installed on the existing Quonset Hut.

2. Item 6.02 – Power & Communication Systems - Attendant Building #2

a. Measurement: Lump Sum

b. Payment: Will be paid on a Lump Sum basis upon completion of the Work.

c. Includes: All labour, equipment, and materials required to supply and install the power and communications systems for Attendant Building #2. Includes cables, conduit, and all appurtenances required for connection to power and communication systems near the east side of the z-wall.

3. Item 6.03 – Power - Well Pump

a. Measurement: Lump Sum

b. Payment: Will be paid on a Lump Sum basis upon completion of the Work.

c. Includes: All labour, equipment, and materials required to supply and install the power system for the well pump. Includes conduit, cables, and all appurtenances required for connection to existing power as shown on the Contract Drawings.

4. Item 6.04 – Power - Gate Entry (North)

a. Measurement: Lump Sum

b. Payment: Will be paid on a Lump Sum basis upon completion of the Work.

c. Includes: All labour, equipment, and materials required to supply and install the power system for the north gate. Includes conduit, cables, and all appurtenances to connect the gate power to systems near Attendant Building #2.

5. Item 6.05 – Power - Gate Entry (South)

a. Measurement: Lump Sum

b. Payment: Will be paid on a Lump Sum basis upon completion of the Work.

c. Includes: All labour, equipment, and materials required to supply and install the power system for the south gate. Includes conduit, cables, and all appurtenances to connect the gate power to systems along the entry road.

6. Item 6.06 – Site Security System - Attendant Building #1

a. Measurement: Lump Sum

b. Payment: Will be paid on a Lump Sum basis upon completion of the Work.

c. Includes: All labour, equipment, and materials required to supply and install the site security system for Attendant Building #1. Contractor to coordinate with Owner for location and direction of security cameras and communication systems to be installed. Contractor to submit proposed camera model to Contract Administrator for approval.

7. Item 6.07 – Site Lighting - Weigh Scale

a. Measurement: Lump Sum

b. Payment: Will be paid on a Lump Sum basis upon completion of the Work.

c. Includes: All labour, equipment, and materials required to supply and install the lighting system for the weigh scale area as shown on the Contract Drawings.

8. Item 6.08 – Site Lighting - Gate Entry (North)

a. Measurement: Lump Sum

b. Payment: Will be paid on a Lump Sum basis upon completion

of the Work.

c. Includes: All labour, equipment, and materials required to supply and install the lighting system for the north gate entry area as shown on the Contract Drawings.

9. Item 6.09 – Site Lighting - Gate Entry (South)

a. Measurement: Lump Sum

b. Payment: Will be paid on a Lump Sum basis upon completion of the Work.

c. Includes: All labour, equipment, and materials required to supply and install the lighting system for the south gate entry area as shown in the Contract Drawings. Includes cable, conduit, and all appurtenances to connect to existing electrical systems at the scale house.

10. Item 6.10 – Site Lighting - Attendant Building #2

a. Measurement: Lump Sum

b. Payment: Will be paid on a Lump Sum basis upon completion of the Work.

c. Includes: All labour, equipment, and materials required to supply and install the lighting system for Attendant Building #2 as shown in the Contract Drawings.

11. Item 6.11 – Site Lighting - Attendant Building #1

a. Measurement: Lump Sum

b. Payment: Will be paid on a Lump Sum basis upon completion of the Work.

c. Includes: All labour, equipment, and materials required to supply and install the lighting system for the Attendant Building #1 as shown in the Contract Drawings.

12. Item 6.12 – Site Lighting - Roadway & Sorting Bins

a. Measurement: Lump Sum

b. Payment: Will be paid on a Lump Sum basis upon completion of the Work.

c. Includes: All labour, equipment, and materials required to supply and install the lighting system for the entrance roadway and along the z-wall bays as shown on the Contract Drawings. Includes cables, conduit, and all appurtenances required to connect the roadway lighting systems to existing power at the

scale house and the z-wall lighting to power systems near the east end of the wall.

D. Item 7 of SOQ – Roads, Traffic, and Signage

1. Item 7.01 – Construct Upper Asphalt Pad and Paved Road Access System c/w Components

Components of the upper asphalt pad will be measured and paid as described in sub-items a), b), c), and d) below.

a) High-Strength Woven Geotextile

a. Measurement: Calculated quantities based on topographic survey, conducted by the Contractor and verified by the Contract Administrator.

b. Payment: Will be paid on a per square meter basis upon completion of the Work, to nearest square meter.

c. Includes: All labour, equipment, and materials required to supply and install the High-Strength Woven Geotextile on top of the prepared subgrade. Includes all areas requiring asphalt, including the site entrance, frontage road, scale area, z-wall access road, upper pad area, and western road as shown on the Contract Drawings. Geotextile shall be covered with the granular layer as soon as possible and shall not be left exposed overnight to prevent damage to the material.

b) 300mm Thick Coarse Granular Road Base

a. Measurement: Calculated quantities based on topographic survey, conducted by the Contractor and verified by the Contract Administrator.

b. Payment: Will be paid on a per square meter basis upon completion of the Work, to nearest square meter.

c. Includes: All labour, equipment, and materials required to supply, place, and compact the 300 mm Course Granular Road Base on top of the High Strength Geotextile. Includes all areas requiring asphalt, including the site entrance, frontage road, scale area, z-wall access road, upper pad area, and western road as shown on the Contract Drawings.

c) 100mm Thick 19mm Minus Crushed Gravel

a. Measurement: Calculated quantities based on topographic survey, conducted by the Contractor and verified by the Contract Administrator.

b. Payment: Will be paid on a per square meter basis upon completion of the Work, to nearest square meter.

c. Includes: All labour, equipment, and materials required to supply, place, and compact the 19mm Minus Crushed Gravel on top of the Granular Road Base. Includes all areas requiring asphalt, including the site entrance, frontage road, scale area, z-wall access road, upper pad area, and western road as shown on the Contract Drawings.

d) 75mm Thick Asphalt

a. Measurement: Calculated quantities based on topographic survey, conducted by the Contractor and verified by the Contract Administrator.

b. Payment: Will be paid on a per square meter basis upon completion of the Work, to nearest square meter.

c. Includes: All labour, equipment, and materials required to supply, place, and compact the 75mm of hot mix asphalt on top of the 19mm Minus material as per the Contract Documents. Includes all areas requiring asphalt, including the site entrance, frontage road, scale area, z-wall access road, upper pad area, and western road as shown on the Contract Drawings.

2. Item 7.02 – Construct Lower Gravel Pad and Access System c/w Components

Components of the upper asphalt pad will be measured and paid as described in sub-items a) and b) below.

a) 300mm Thick Coarse Granular Road Base

a. Measurement: Calculated quantities based on topographic survey, conducted by the Contractor and verified by the Contract Administrator.

b. Payment: Will be paid on a per square meter basis upon completion of the Work, to nearest square meter.

c. Includes: All labour, equipment, and materials required to supply, place, and compact the 300 mm Course Granular Road Base on top of the prepared subgrade. Includes all areas as shown on the Contract Drawings, including but not limited to the northern site entrance road, northern portion of the western access road, and the operational pad area as shown on the Contract Drawings.

b) 100mm Thick 19mm Minus Crushed Gravel

a. Measurement: Calculated quantities based on topographic survey, conducted by the Contractor and verified by the Contract Administrator.

b. Payment: Will be paid on a per square meter basis upon completion of the Work, to nearest square meter.

c. Includes: All labour, equipment, and materials required to supply, place, and compact the 19mm Minus Crushed Gravel on top of the Granular Road Base. Includes but is not limited to the northern site entrance road, northern portion of the western access road, and the operational pad area as shown on the Contract Drawings

3. Item 7.03 – Supply and Install Access Gates at New North Entrance

a. Measurement: Lump Sum.

b. Payment: Will be paid on a lump sum basis upon commissioning of the access gates.

c. Includes: All labour, equipment, and materials required to supply and install the new access gates in the northern entrance according to the Contract Documents.

4. Item 7.04 – Supply and Install No-Post Barriers

a. Measurement: Per count of unit installation.

b. Payment: Per each.

c. Includes: All labour, equipment, and materials required to supply and install Precast Concrete Roadside Barriers as directed by the Contract Administrator. The exact length and locations of barriers are unknown, 100 meters of barrier is provided in the SOQ for pricing purposes. All barriers shall conform to the standards provided in the Ministry of Transportation's 2025 Standard Specifications for Highway Construction, specifically Section 941 and Standard Detail Drawings SP941- 02.01.01 to 04.

5. Item 705 – Supply and Install Traffic Signage

a. Measurement: Per count of unit installation.

b. Payment: Per each.

c. Includes: All labour, equipment, and materials required to supply and install signage as per the Contract Documents.

E. Item 8 of SOQ – Septic Field and Holding Tank

1. Item 8.01 – Supply and Install New 4" CSA Sewer Line c/w Cleanouts, Fittings, and Tie-in to Existing 4" Sewer Pipe Per BC Plumbing Code

    a. Measurement: Calculated quantities based on a neat line basis for installed length of sewer line. Length will be measured by topographic survey, conducted by the Contractor and verified by the Contract Administrator.

    b. Payment: Per Linear Meter (LM)

    c. Includes: All labour, equipment, and materials required to supply and install new 4” CSA sewer line complete with cleanouts, fittings and tie-in to the existing 4” sewer pipe as per the Contract Drawings and applicable codes.

2. Item 8.02 – Supply and Install Holding Tank at Attendants Shack #2 c/w Ultrarib/Polylok Riser and Tank Alert EZ Alarm

    a. Measurement: Lump sum.

    b. Payment: Will be paid on a lump sum basis upon commissioning of the holding tank.

    c. Includes: All labour, equipment, and materials required to supply and install the septage holding tank at Attendant Shack #2, including the riser and tank alert alarm as per the Contract Documents.

3. Item 8.03 – Construct Gravity Dispersal Field c/w Components

    Components of the gravity dispersal field will be measured and paid as described in sub-items a), b), c), and d) below.

    a) 6-Hole Distribution Box c/w 3 Poly Lok Rotoflow Equalizers and Solid Walled Pipe (Min. 1% Slope)

        a. Measurement: Lump sum.

        b. Payment: Will be paid on a lump sum basis upon commissioning of the gravity dispersal field.

        c. Includes: All labour, equipment, and materials required to supply and install the 6-hole distribution box complete with Poly Lok Rotoflow equalizers and solid pipe as per the Contract Documents.

    b) Gravity Seepage Bed c/w Infiltrative Surface Prep, 300 mm Thick Coarse Aggregate, Lighweight Non-Woven Geotextile, and 150-300 mm Thick Cover Soil

        a. Measurement: Calculated quantities based on topographic survey of the area of the completed work, conducted by the Contractor and verified by the Contract

Administrator.

b. Payment: Per square metre ($m^2$)

c. Includes: All labour, equipment, materials, and incidental work required to install the gravity seepage bed including infiltrative surface preparation, and coarse aggregate, lightweight non-woven geotextile, and cover soil as per the Contract Documents.

c) Typ. 4" Clean-Outs (Test/Flush Caps) c/w Adaptors, Caps, Fittings, and Access Box

a. Measurement: Per count of unit installed.

b. Payment: Per each.

c. Includes: All labour, equipment, materials, and incidental work required to install 4" cleanouts including adaptors, caps, fittings, and the access box as per the Contract Documents.

d) 3-4" CSA SCH40 PVC Perforated Sewer Pipe (Slope <0.2%) c/w Pipe Observation Ports

a. Measurement: Calculated quantities based on a neat line basis for installed length of perforated sewer pipe. Length will be measured by topographic survey, conducted by the Contractor and verified by the Contract Administrator.

b. Payment: Per Linear Meter (LM)

c. Includes: All labour, equipment, materials, and incidental work required to supply and install 3-4" CSA SCH40 PVC perforated sewer pipes, complete with pipe observation ports, as per the Contract Documents.

4. Item 8.04 – Supply and Install Septic Tank at Scale House c/w Ultrarib/Polylok Riser and Effluent Filter with Extension Handle

a. Measurement: Lump sum.

b. Payment: Will be paid on a lump sum basis upon commissioning of the holding tank.

c. Includes: All labour, equipment, materials, and incidental work required to supply and install the septic tank at the scale house, complete with the riser and effluent filter with extension handle as per the Contract Documents.

F. Item 9 of SOQ – Site Infrastructure

1. Item 9.01 – Relocate and Install Existing Attendant Shacks c/w Utilities

a. Measurement: Per count of unit installation.

b. Payment: Per each.

c. Includes: All labour, equipment, and materials required to relocate and install the existing attendant shacks as per the Contract Documents. Includes re-instating all necessary utilities.

2. Item 9.02 – Supply and Install Stainless Steel Staircase for Z-Wall Accessibility

a. Measurement: Lump sum.

b. Payment: Payment will be made on a lump sum basis upon installation of the staircase.

c. Includes: All labour, equipment, and materials required to supply and install a steel staircase to provide pedestrian access between the upper and lower pads. The Contractor is responsible for ensuring the design of the staircase conforms to the building code and all applicable local regulations. Contractor may be required to utilize concrete footings to secure the staircase, lock blocks and other precast blocks may be considered by the Contract Administrator. Contractor to submit shop drawings and installation plans for approval by the Contract Administrator in accordance with the Contract Documents.

3. Item 9.03 – Construct Water Forcemain from Existing Onsite GW Well c/w HDPE Pipe, Pipe Embedment and Compaction, Caution Tape, Backfill and Compaction, and Tie-in to Attendant Shack #1 & #2, Scale House, and Standpipes (x2)

a. Measurement: Lump sum.

b. Payment: Payment will be made on a lump sum basis upon commissioning

c. Includes: All labour, equipment, and materials required to relocate the water forcemain from the existing well on site to the scale house. Includes construction of new watermain lines as shown on the Contract Drawings—the Contractor is required to confirm the existing size (believed to be 75mm) and match throughout new construction. Includes all supply and installation of pipe, pipe embedment, caution tape, backfill, and decommissioning, removal, and disposal of existing water line. Includes compaction and tie-in to Attendant Shacks #1 and #2, the Scale House, and the clean water standpipes. Work should be scheduled to provide minimal interruptions to

water use in the scale house.

Also includes insulation of water service and heat tracing (Municipex Pre-Insulated Water Service or approved equal) where the water line has less than 1.2 meters of cover.

4. Item 9.04 – Construct Clean Water Stand Pipe

   a. Measurement: Per count of installation.

   b. Payment: Per unit installed.

   c. Includes: All labour, equipment, and materials required to supply and install the clean water standpipes as shown on the Contract Drawings.

5. Item 9.05 – Flushing, Testing, and Commissioning for Water Lines

   a. Measurement: Lump sum.

   b. Payment: Payment will be made on a lump sum basis upon commissioning of the water lines.

   c. Includes: All labour, equipment, and materials required to flush, pressure test, disinfect, and commission the water lines. All testing required by provincial and local regulations shall be completed before backfill occurs, and the Contractor is responsible for any rework required to bring the water line into operation.

6. Item 9.06 – Supply and Install Site Washroom (Job Jon) and Tie-In to Holding Tank

   a. Measurement: Lump sum.

   b. Payment: Payment will be made on a lump sum basis upon commissioning of the washroom.

   c. Includes: All labour, equipment, materials, and incidental work required to supply and install a custom 100 Series JobJon Portable Lavatory with Septic Tank and Potable Water Tank Removed. Also includes connection of JobJon to septic holding tank to be constructed under this Contract.

7. Item 9.07 – Remove and Dispose of Existing Fence (may be disposed in the Ootischenia Landfill)

   a. Measurement: Per count of completion.

   b. Payment: Per Linear Metre (LM)

   c. Includes: All labour, equipment, materials, and incidental work necessary to remove the existing fencing as outlined in the Contract Drawings for disposal to the Ootischenia Landfill.

8. Item 9.08 – Install New Electric Fence (incl. all wires, posts, staples, insulators, testing, etc.)

    a. Measurement: Per count of completion.

    b. Payment: Per Linear Metre (LM)

    c. Includes: All labour, equipment, materials, and incidental work necessary to install new electric fencing as outlined in the Contract Documents. Includes all required wires, posts, staples, insulators, and testing.

**PART 2**
**PART 2**
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**PART 2**
**PART 2**

## PART 2 PRODUCTS

2.01 NOT USED

## PART 3 EXECUTION

3.01 NOT USED

**** END OF SECTION ****

# Section 01 30 00 – Administrative Requirements

## PART 1 GENERAL

1.01 SECTION INCLUDES

A. All elements to administer the contract through coordination, a pre-construction meeting and regular construction meetings.

1.02 COORDINATION

A. Coordinate scheduling, submittals and work as best suited to the Project needs. Ongoing and special Site operation and previous contracts take precedent when scheduling, submittals and work conflict.

B. Coordinate scheduling, submittals, and work to ensure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later.

C. Coordinate access into the Site at the Site entrance with the Contract Administrator.

D. Coordinate all Work on access roads within the landfill with the Contract Administrator.

E. Coordinate Work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.

F. Coordinate space requirements and installation of mechanical and electrical Work which are indicated diagrammatically on Drawings. Utilize space efficiently to maximize accessibility for other installations, for maintenance, and for repairs.

G. Coordinate completion and cleanup of work of separate sections in preparation for substantial performance and for portions of work for use by the Contract Administrator.

H. After Owner occupancy of the Site, coordinate access to Site for correction of defective Work and Work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

1.03 PRECONSTRUCTION MEETING

A. The Engineer will schedule a meeting after date of the Contract execution.

B. Attendance Required: Owner, Contractor, Contract Administrator, major subcontractors and Site contractors engaged in other Site contracts that might interfere with the Work.

C. Agenda:

1. Distribution of Contract Documents

2. Submission of list of subcontractors, list of products, Schedule of Quantities and Prices, and progress schedule
3. Designation of personnel representing the parties in the Contract and the Owner
4. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, contemplated Change-orders, Change-orders, and the Contract closeout procedures
5. Scheduling
6. Use of premises by Owner and Contractor
7. Owner's requirements
8. Construction facilities and controls provided by Owner
9. Security and housekeeping procedures
10. Procedure for maintaining record documents
11. Contractor Site-specific Health and Safety Plan

1.04 PROGRESS MEETINGS

A. The Contract Administrator or the Owner will schedule and administer meetings throughout the progress of the work every week, or as determined by the Contract Administrator.

B. Attendance required: project manager, site superintendent, major subcontractors' representatives and suppliers' representatives, Contract Administrator and other representatives as appropriate to agenda topics for each meeting.

C. General items to be included on the weekly agenda:

1. Review minutes of previous meetings
2. Safety items and report of any safety related incidents
3. Review of work progress
4. Field observations, problems, and decisions.
5. Identification of problems which impede planned progress
6. Review of submittals schedule and status of submittals
7. Review of off-Site fabrication and delivery schedules
8. Review of design prior to initial construction of individual components
9. Review of surveying for construction, progress payments, and as-built documentation
10. Any revisions to progress schedule
11. Corrective measures to regain projected schedules
12. Planned progress during succeeding Work period

13. Coordination of projected progress
14. Maintenance of quality and Work standards
15. Effect of proposed changes on progress schedule and coordination
16. Other business relating to work
17. Any potential financial implications to Owner

## PART 2 PRODUCTS

2.01 NOT USED

## PART 3 EXECUTION

3.01 NOT USED

**** END OF SECTION ****

# Section 01 33 00 – Submittal Procedures

## PART 1 GENERAL

1.01 SECTION INCLUDES

A. Steps for documentation and procedures to minimize delays and ensure strong communication throughout the project.

1.02 SUBMITTAL PROCEDURES

A. Submittals must be presented in the format acceptable to and approved in advance by the Contract Administrator. A cover page may be available to the Contractor upon request.

B. Accompany each submittal with a letter of transmittal showing all information required for identification and tracking. Identify project, the Contractor, subcontractor or supplier; pertinent Drawing sheet and detail number(s), and Specification section number, as appropriate.

C. On at least the first page of each submittal, and elsewhere as required for identification, show the submittal number to which the item belongs.

D. Number the transmittal forms and corresponding submittals sequentially. Number each resubmittal using the original submittal number and an alphabetic suffix. For example, the first resubmittal of submittal 3 would be number 3A. Resubmittals shall be transmitted with a new letter of transmittal and shall cite the original submittal number for reference.

E. Prior to each submittal, carefully review and coordinate all shop drawings and data furnished by suppliers and subcontractors for accuracy and for conformance with requirements of the Specifications.

F. Identify variations from Specifications and products that would benefit the Owner and the completed work and highlight the advantages of such products. Any request to substitute an alternate product must be submitted to the Engineer in writing as part of the tender documents and shall include complete product specifications addressing all Specifications outlined within this section and the benefits to the Owner resulting from the substitution.

G. Submittals shall clearly show drawings, sketches, catalog cuts, or letters from supplier which demonstrate compliance with the specific requirements of the Specifications. If compliance is not clearly demonstrated, the submittal will be rejected.

H. Data and information included in each specification shall indicate the guaranteed performance, predicted performance, interface requirements, and construction features of all Contractor-furnished materials and equipment. The accuracy of such information and the compatibility of such information with

overall performance requirements specified shall be the sole responsibility of the Contractor.

I. Provide space for the Contractor and Engineer to review comments, signature and/or stamps.

J. Revise and resubmit submittals as required, clearly identifying all changes made since previous submittal. The Contractor is solely responsible for producing and submitting accurate and relevant submittals.

K. Make submittals of shop drawings, samples, substitution requests, and other items in accordance with the provisions of this section.

L. Make submittals in groups containing all associated items. Partial submittals will be rejected as not complying with provisions of the Specifications.

M. Submittals shall be scheduled to expedite the Project. Make submittals far enough in advance of scheduled installation dates to provide adequate time for reviews, for shipping time between parties, for securing necessary approvals, for possible revisions and resubmittal, and for placing orders and taking delivery of materials.

N. If not otherwise noted in the Contract, allow at least ten (10) working days for review by following receipt of the submittal by the Contract Administrator. Each rejected or returned for revision version of submittals shall be subject to an additional ten (10) working days review period by the Contract Administrator. The Contractor shall schedule the submittal delivery to allow for the Contract Administrator's review period including any potential revisions.

1.03 CONSTRUCTION PROGRESS SCHEDULES

A. Submit revised schedules with each application for payment, identifying changes since previous version.

B. Indicate estimated percentage of completion for each item of work at each submission.

1.04 SHOP DRAWINGS

A. General

1. Coordinate and check all shop drawings furnished by Suppliers and subcontractors for accuracy and for conformance with requirements of the Specifications

B. Drawings and Transmittals

1. Supply all drawings, data sheets, performance curves, test reports, and instruction manuals as specified herein.

2. The drawings and data submitted shall include sufficient detail and clarity to enable the Engineer to determine that the proposal or design is compliant with

the Specifications. If standard drawings and/or standard published descriptive data are submitted, any modifications required and intended by the Contractor to meet the requirements of each Specification shall be clearly indicated.

3. Data and information included in each specification shall indicate the guaranteed performance, predicted performance, interface requirements, and construction features of all Contractor-furnished materials and equipment. The accuracy of such information and the compatibility of such information with overall performance requirements specified by the Engineer shall be the sole responsibility of the Contractor.

C. Design Submittals

1. Submit drawings, data, and other required information within the specified time limit.

2. The following drawing requirements shall be met:

   a. All measurements shall be in International System of Units (SI) Metric units. U.S. units may be provided within parenthesis. All writing shall be in English.

   b. Drawing size shall not exceed ANSI D size (22-inch x 34-inch).

   c. Preliminary drawings shall be reproducible AutoCAD and Adobe Reader type for sizes greater than ANSI B size (11-inch x 17-inch).

   d. Final (certified) drawings shall be AutoCAD and Adobe Reader type.

   e. Final (certified) drawings shall be marked as "CERTIFIED" with an accompanying signature and date.

   f. When a drawing is revised, a revision number shall be clearly displayed in or near the title block. Current revisions shall be indicated by circling the affected portions of the drawing.

3. Furnish certified general arrangement drawings and outline drawings showing all major equipment, component parts and accessories, assembly, all interface connections to related equipment, disassembly clearances and magnitude of permissible reaction forces and moments at major pipe connections of equipment, and equipment center of gravity.

4. Furnish certified detailed drawings to enable Engineer to verify design of foundation, supports, and equipment interfacing. Connection-points and foundation drawings shall be fully dimensioned. Connection details shall be fully identified. Drawing information shall include as a minimum:

   a. Component and auxiliary system equipment, flow diagrams including instrumentation, pipe, and valve arrangement drawings

   b. Foundation loading, pipes and valves loading, and clearance dimensions including magnitude and direction of loads for all load cases

   c. Anchor bolt and embedded parts size, location, and details

d. Pipe and conduit sleeve sizes and locations

e. Certified wiring diagrams, interconnection wiring diagrams

f. Instrument board, cabinet and panel layout, and terminal identification drawings and diagrams

g. Wire and cable designation drawings

h. Control logic diagrams

i. Materials designations shall be indicated on assembly drawing

j. Complete process flow and instrumentation drawings

5. Provide adequate certified information covering installation, operation, and maintenance requirements. As a minimum the following information shall be provided:

a. Installation and erection drawings and details; including, and not limited to welding and/or bolting specifications and extent of field Work required

b. Operating, maintenance, and repair (Instruction) Manuals

c. Insulation and lagging requirements

d. Record of all clearances, tolerances, and other pertinent data required for installation

e. Foundation, load and anchorage detail requirements

f. List of loose instruments, instrument panels, pipe, tubing, and accessories

g. Erection procedures

h. Estimated total weight of components shipped fully assembled

i. Shipping Splits: Approximate weight and size of major pieces

j. Field assembly requirements of components (i.e., bolted or welded, lineal metre (feet) of field weld, if applicable, etc.)

D. Technical Data

1. Provide certified data, including graphs, curves, and other pertinent information for the materials, equipment, and machinery. Technical data shall include the following:

a. A signed Certified of Compliance stating the following: "All Work provided under this Specification complies with all requirements of this Specification and accepted deviations."

b. Data Sheets (pumps, motors, valves, fans, louvers, etc.)

c. Documents identifying deviations and their acceptance

d. Manufacturer's Data Report for CSME Code (or ASME Code) stamped items

e. Materials Test Reports where required by governing Codes or Standards

f. Non-destructive examination procedures and results

g. Shop Test results

h. Field Test results

i. Electrical Test results

j. Welding procedures

k. Records of all major weld repairs and related processing and examination

l. A complete list of all special tools and gauges of custom manufacture necessary to overhaul, operate, adjust, or maintain equipment.

1.05 PRODUCT DATA

A. Mark each copy to identify applicable products, models, options, and other data.

B. Supplement manufacturers' standard data to provide information unique to this Project.

C. After review, distribute in accordance with paragraph 1.04 of this section. Where the contents of submitted manufacturer’s, literature include data not pertinent to the submittal, clearly indicate which portions of the contents are being submitted for review.

1.06 SAMPLES

A. Submit samples to illustrate functional and aesthetic characteristics of the Product, with integral parts and attachment devices. Coordinate sample submittals for interfacing Work.

B. Submit samples of finishes from the full range of manufacturers' standard colors, textures, and patterns for Contract Administrator's selection.

C. Identify each sample and include full Project information with each sample.

D. One sample will be retained by the Contract Administrator and/or Engineer.

1.07 MANUFACTURERS INSTRUCTIONS

A. When specified in individual specification sections, submit manufacturers' printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, in quantities specified for Product Data.

B. Identify conflicts between manufacturers' instructions and Contract Documents.

C. All manufactured articles, materials, and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned in strict accordance with manufacturer's printed directions, unless otherwise specified. Furnish bound

copies of manufacturer's printed specifications for installation, use or maintenance to the Contract Administrator.

1.08 MANFUACTURERS CERTIFICATES

A. When specified in individual specification sections, submit manufacturer's certificate to the Contract Administrator for review, in quantities specified for Product Data.

B. Indicate material or product conforms to or exceeds specified requirements. Submit supporting reference date, affidavits, and certifications as appropriate.

C. Certificates may be recent or previous test results on material or Product and must be acceptable to the Contract Administrator.

**PART 2 PRODUCTS**

2.01 NOT USED

**PART 3 EXECUTION**

3.01 NOT USED

**** END OF SECTION ****

# Section 01 50 00 – Temporary Facilities and Controls

## PART 1 GENERAL

1.01 SECTION INCLUDES

A. The provisions required for temporary facilities, services, and their controls.

1.02 PROTECTION OF WORK AND PROPERTY

A. It is the Contractor's sole responsibility to protect all existing property, equipment, utilities, and infrastructure from any damage or injury, directly or indirectly caused by the Contractor, through his own actions or his failure to act.

B. The Contractor shall, at his own expense supply, erect and maintain devices and temporary facilities as may reasonably be required to ensure the protection of Owner's property, equipment, utilities, and infrastructure.

C. It will be the Contractor's responsibility to remediate, at his own cost, all damage or injury, to the satisfaction of Contract Administrator.

1.03 TEMPORARY ELECTRICITY (AS NECESSARY)

A. Provide and pay for power service required if the Work requires disruption to the Site's electrical service.

B. Provide temporary electric feeder from existing electrical service. Do not disrupt the Owner's need for continuous power service.

C. Provide separate metering and reimburse Owner for the cost of energy used unless alternative arrangements can be made.

D. Provide main service disconnect and overcurrent protection at convenient location.

1.04 TEMPORARY LIGHTING (AS NECESSARY)

A. Provide and maintain lighting for construction operations.

B. Permanent building lighting may be utilized during construction.

1.05 TEMPORARY HEAT (AS NECESSARY)

A. Provide and pay for heat devices and heat as required to maintain specified conditions for construction operation.

1.06 TEMPORARY VENTILATION (AS NECESSARY)

A. Ventilate enclosed areas to assist cure of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.

1.07 TEMPORARY WATER SERVICE

A. Provide, maintain, and pay for suitable quality water service required.

B. Provide separate metering and backflow prevention and reimburse Utility for cost of water used.

C. Extend branch pipe with outlets located so water is available by hoses with threaded connections. Provide temporary pipe insulation to prevent freezing, as required.

1.08 TEMPORARY SANITARY FACILITIES

A. Provide and maintain required facilities and enclosures.

1.09 BARRIERS

A. Provide easily seen barriers to prevent unauthorized entry to construction areas, to allow for Engineer's use of Site, and to protect existing facilities and adjacent properties from damage from construction operations using a variety of methods and employing the use of a Hydrovac system when working in or around existing utilities if access is available.

B. Provide barricades and covered walkways required by governing authorities for public rights-of-way.

C. Provide protection for plant life designated to remain. Remove and replace damaged plant life.

D. Protect non-owned vehicular traffic, stored materials, Site, and structures from damage.

1.10 WATER CONTROL

A. Grade Site to drain properly. Provide, install, operate, and maintain necessary machinery, appliance, and equipment to keep excavations free of water during construction.

B. Dewater and dispose of water in a manner that will not cause injury or nuisance to the public and private property.

C. Do not cause a nuisance to the public.

D. Always keep sufficient pumping equipment and machinery on hand for emergencies, including electric power failures.

E. Always keep experienced personnel available to operate pumping equipment, machinery, and appliances.

F. Do not shut down or discontinue supervision of dewatering systems between shifts, on holidays and weekends, nor during Work stoppages.

G. Control groundwater to prevent softening of bottoms of excavations, or formation of "quick" conditions or "boils."

H. Design and operate dewatering system that will not remove natural soil.

I. Keep excavation free of water during excavation, construction of structures, installation of piping, place of structures, backfilling, and placing and curing of concrete.

J. Control surface water runoff to prevent entry and collection in excavations.

K. Draw down static water level a minimum of 300 mm (1 foot) below the bottom of excavations to maintain the undisturbed state of foundation soils and allow placement and compaction of fill and backfill materials to required density.

L. Install and operate dewatering system so that groundwater level outside excavations is not lowered to an extent that will damage or endanger adjacent structures or property.

M. Do not use open or cased pumps as primary dewatering means for excavations more than 1 metre (3 feet) below the static water level. Locate open or cased sumps outside of excavation limits.

N. Release static water level in a manner to maintain the undisturbed state of natural soils; prevent disturbance of compacted backfill; and prevent flotation or movement of structures and piping.

O. Do not obstruct ditches; provide means for free flow of surface water.

P. Provide methods to remove and dispose of surplus water, mud, silt, slicking's, or other runoff pumped from excavations or from sluicing or other operations.

Q. Do not allow untreated water generated onsite to enter municipal stormwater systems or natural water courses such as streams and lakes unless authorized by the Contract Administrator.

1.11 DUST CONTROL

A. Provide effective dust control during construction to the satisfaction of the Contract Administrator and local air pollution control authority.

B. Measures known to be effective include but are not limited to frequent use of water (water truck), application of Calcium Chloride, Magnesium Chloride, Lignin Sulfonate, or other similar products.

1.12 PROTECTION OF INSTALLED WORK

A. Protect installed work and provide special protection where specified in individual Specification sections.

B. Provide temporary and removable protection for installed Products. Control Activity in immediate Work area to prevent damage.

C. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.

D. Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.

E. Prohibit traffic or storage upon roofed surfaces. If traffic or Activity is necessary, obtain recommendations for protection from roofing material manufacturer.

F. Prohibit traffic from landscaped areas.

## PART 2 PRODUCTS

2.01 NOT USED

## PART 3 EXECUTION

3.01 NOT USED

**** END OF SECTION ****

# Section 01 60 00 – Product Requirements

## PART 1 GENERAL

1.01 SECTION INCLUDES

A. The requirements in the acquisition and substitution of products associated with the Work.

1.02 PRODUCTS

A. Products mean new material, machinery, components, equipment, fixtures, and systems forming the work. It does not include machinery and equipment used for preparation, fabrication, conveying, and erection of the Work.

B. Products may include existing materials or components supplied and approved by the Contract Administrator, at the Contract Administrator's discretion.

C. Provide interchangeable components of the same manufacturer, for similar components.

1.03 DELIVERY, STORAGE, AND HANDLING

A. General

1. All equipment shall be adequately prepared for shipment and for outdoor storage.

2. Prior to shipment, equipment shall be completely drained and thoroughly dried. When such drainage requires the removal of plugs, drain valves, etc., Seller shall be responsible that these parts are reinstalled or reassembled prior to shipment.

3. All openings and machined surfaces shall be provided with protection to prevent damage, corrosion, and entrance of foreign matter during shipment and storage.

4. Flanged connections shall be protected by a 1/2-inch or thicker plywood disc, or suitable alternate, bolted to the face of the flange.

5. Threaded or socket weld connections shall be protected with screwed or snap-in/snap-on type, securely held, plastic protectors. Cast iron plugs are not acceptable for protection unless part of the permanent assembly.

6. Butt weld connections shall be protected by wooden disks that cover the entire weld end area and are secured by metal straps and fasteners.

7. Covers, straps, or fasteners shall not be welded to equipment.

8. Equipment shall be adequately supported for shipment. All loose parts shall be crated or boxed for shipment and appropriately identified. Where shipment is braced internally, it shall be marked conspicuously "Remove internal braces before testing and operating."

9. To facilitate rapid installation, all equipment shall be shop assembled to the maximum extent practical before shipment to Site.

10. All large and heavy shipping units shall have suitable skids for moving. Crating shall also be adequate for lifting with slings. If the location of slings is critical, these locations shall be marked accordingly. Lifting lugs, if required, shall be provided and installed by Seller.

B. Site Handling and Storage of Materials and Equipment

1. Where required to protect against condensation and humidity, sufficient desiccant for the prescribed storage interval shall be provided by the Seller and its presence with the need of periodic removal, dry-out, or replacement shall be so marked. When electric space heaters are provided for that purpose, these shall be wired by the Seller such that energization immediately upon receipt is possible without disassembly of crates, etc. This also requires that no combustible material be left inside the equipment or crate.

2. Seller shall provide one copy of storage and handling instructions to Purchaser, including descriptions for periodic inspection and/or storage maintenance to enable Purchaser to ascertain that no deterioration will occur during storage. One set of these instructions shall also be fastened securely to the outside of each shipping unit to aid personnel in storage and handling.

3. All material and equipment shall be protected against loss, damage by corrosion, weather, overstressed components, or contamination by foreign materials. The Contractor shall repair or replace any material or equipment damaged during delivery or installation at no cost to the Owner.

1.04 PRODUCT OPTIONS

A. Products Specified by Reference Standards or by Description Only: Any product meeting those standards or description.

B. Products Specified by Naming One or More Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not named.

1.05 SUBSTITUTIONS (APPROVED ALTERNATIVES)

A. Substitutions may be considered at the option of the Contract Administrator.

B. Substitutions must comply with Contract Documents.

C. Document each request with complete data substantiating compliance of proposed substitution with the Contract Documents.

D. A request constitutes a representation that the Contractor:

1. Has investigated proposed Product and determined that it meets or exceeds the quality level of the specified Product.

2. 2. Will provide the same warranty for the Substitution as for the specified Product.

3. Will coordinate installation and make changes to other work which may be required for the work to be complete with no additional cost to the Owner.

4. Waives claims for additional costs or time extension which may subsequently become apparent.

E. Substitution Submittal Procedure:

1. Submit four (4) copies of request for Substitution for consideration. Limit each request to one proposed Substitution.
2. Submit shop drawings, product data, and certified test results attesting to the proposed product equivalence.
3. The Contract Administrator will notify the Contractor, in writing, of the decision to accept or reject request. If not otherwise noted in the Contract, allow at least ten (10) working days for review by the Contract Administrator following receipt of the Substitution
4. unless time is of the essence as interpreted by the Contract Administrator.

## PART 2 PRODUCTS

2.01 NOT USED

## PART 3 EXECUTION

3.01 NOT USED

**** END OF SECTION ****

# Section 01 77 00 – Closeout Procedures

## PART 1 GENERAL

1.01 SECTION INCLUDES

A. Administrative processes for Contractor's inspection, Contract Administrator's review of Work, including specific task completions and correction of deficiencies and defects.

1.02 ADMINISTRATIVE REQUIREMENTS

A. Acceptance of Work:

1. Contractor to conduct inspection of Work, identify deficiencies and defects, and repair as required to conform to the Contract Documents.

a. Notify the Contract Administrator in writing of satisfactory completion of Contractor's inspection and submit verification that corrections have been made.

b. Request the Contract Administrator's review of the Work.

2. Contract Administrator's review:

a. Contract Administrator and Contractor to review/inspect Work and identify deficiencies and defects.

b. Contractor to correct Work as directed.

3. Completion tasks: Submit written certificates in English that tasks have been performed as follows:

a. Work: Completed and inspected for compliance with Contract Documents.

b. Defects: Corrected.

c. Deficiencies: Completed.

d. Equipment and systems: Tested, adjusted, and fully operational.

e. Certificates required by Authorities Having Jurisdiction (AHJ): Submitted.

f. Operation of systems: Demonstrated to Owner's designated personnel.

g. Commissioning of mechanical systems: completed and final commissioning report submitted to the Contract Administrator.

h. Work: Complete and ready for final review.

4. Final Review:

a. When completion tasks are done, request final review of Work by the Contract Administrator and Contractor.

b. When Work is incomplete according to the Contract Administrator, complete outstanding items and request an additional review.

5. Declaration of Substantial Performance: When the Contract Administrator considers deficiencies and defects corrected and requirements of the Contract substantially performed, make application for Certificate of Substantial Performance.

6. Commencement of lien and warranty periods: The date Substantial Performance will be the date for commencement of warranty period and commencement of lien period, unless otherwise required by the lien statute at the Place of the Work.

7. Final payment:

    a. When the Contract Administrator considers final deficiencies and defects corrected and requirements of the Contract met, make application for final payment.

    b. .2 When the Work is deemed incomplete by the Contract Administrator, complete outstanding items and request an additional review.

8. Payment of holdback: After issuance of Certificate of Substantial Performance of Work, submit application for payment of holdback amount in accordance with the contractual agreement.

## PART 2 PRODUCTS

2.01 NOT USED

## PART 3 EXECUTION

3.01 NOT USED

**** END OF SECTION ****

# Section 01 78 00 – Closeout Submittals

## PART 1 GENERAL

1.01 SECTION INCLUDES

A. Information regarding submittals for product and system information before project turnover. Includes information on inclusions in the project record documents, as-built documents, and samples.

1.02 ADMINISTRATIVE REQUIREMENTS

A. Pre-warranty Meeting:

1. Convene meeting one week before Contract completion with Contractor and Contract Administrator to:

a. Verify Project requirements.

b. Review manufacturer's installation instructions and warranty requirements.

2. Contract Administrator to establish communication procedures for:

a. Notifying construction warranty defects.

b. Determine priorities for type of defects.

c. Determine a reasonable response time.

3. Contact information for bonded and licensed company for warranty work action: provide name, telephone number and address of company authorized for construction warranty work action. This may be the original Contractor.

4. Ensure contact is located within local service area of warranted construction, is continuously available, and is responsive to inquiries for warranty work action.

1.03 SUBMITTALS

A. Provide all submittals in accordance with Section 01 33 00 – Submittal Procedures.

B. Two weeks before estimated Substantial Performance of the Work, submit to the Contract Administrator final copies of operating and maintenance manuals.

C. Provide spare parts maintenance materials and special tools of same quality and manufacture as products provided in Work.

D. Provide evidence, if requested, for type, source and quality of products supplied.

1.04 FORMAT

A. Organize data as instructional manual. Upon request, the Contract Administrator may permit digital submission of the manuals.

B. Binders: Vinyl, hard covered, 3 'D' ring, loose leaf 219 x 279 mm with spine and face pockets.

C. When multiple binders are used correlate data into related consistent groupings.

1. Identify contents of each binder on spine.

D. Cover: Identify each binder with type or printed title 'Project Record Documents'; list title of project and identify subject matter of contents.

E. Arrange content by systems, under Section numbers and sequence of Table of Contents.

F. Provide tabbed fly leaf for each separate product and system, with typed description of product and major component parts of equipment.

G. Text: manufacturer's printed data, or typewritten data.

H. Drawings: Provide with reinforced punched binder tab.

1. Bind in with text; fold larger drawings to size of text pages.

I. Provide 1:1 scaled CAD files in format acceptable to the Contract Administrator.

1.05 CONTENTS – PROJECT RECORD DOCUMENTS

A. Table of Contents for Each Volume: provide title of project.

1. Date of submission; names.

2. Addresses, and telephone numbers of Consultant and Contractor with name of responsible parties.

3. Schedule of products and systems, indexed to content of volume.

B. For each product or system:

1. List names, addresses and telephone numbers of subcontractors and suppliers, including local source of supplies and replacement parts.

C. Product Data: Product Data: mark each sheet to identify specific products and component parts, and data applicable to installation; delete inapplicable information.

D. Drawings: supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams.

E. Typewritten Text: As required to supplement product data.

1. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions.

1.06 AS-BUILT DOCUMENTS AND SAMPLES

A. Maintain at site for Contract Administrator one record copy of:

1. Contract Drawings.
2. Specifications.
3. Addenda.
4. Change Orders and other modifications to Contract.
5. Reviewed shop drawings, product data, and samples.
6. Site test records.
7. Inspection certificates.
8. Manufacturer's certificates.

B. Store record documents and samples in site office apart from documents used for construction.

1. Provide files, racks, and secure storage as required.

C. Label record documents and file in accordance with Section number listings in List of Contents of this Project Manual.

1. Label each document "PROJECT RECORD" in neat, large, printed letters.

D. Keep record documents and samples available for inspection by Owner or Contract Administrator.

1.07 RECORD INFORMATION ON PROJECT RECORD DOCUMENTS

A. Record information on set of black line opaque drawings, provided by Contract Administrator.

B. Use felt tip marking pens, maintaining separate colours for each major system, for recording information.

C. Record information concurrently with construction progress.

1. Do not conceal Work until required information is recorded.

D. Contract Drawings and shop drawings: mark each item to record actual construction, including:

1. Measured depths of elements of foundation in relation to established site survey.
2. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
3. Site changes of dimension and detail.
4. Changes made by change orders.
5. Details not on original Contract Drawings.
6. Referenced Standards to related shop drawings and modifications

E. Specifications: Mark each item to record actual construction, including:

1. Manufacturer, trade name, and catalogue number of each product actually installed, particularly optional items and substitute items
2. Changes made by Addenda and change orders.

F. Provide digital photos, if requested, for site records.

1.08 FINAL SURVEY

A. Submit final site survey and certificate, certifying that elevations and locations of completed Work are in conformance, or non-conformance with Contract Documents.

1.09 EQUIPMENT AND SYSTEMS

A. For each item of equipment and each system include description of unit or system, and component parts.
1. Give function, normal operation characteristics and limiting conditions.
2. Include performance curves, with engineering data and tests, and complete nomenclature and commercial number of replaceable parts.

B. Panel board circuit directories: provide electrical service characteristics, controls, and communications.

C. Include installed colour coded wiring diagrams.

D. Operating Procedures: include start-up, break-in, and routine normal operating instructions and sequences.
1. Include regulation, control, stopping, shut-down, and emergency instructions.
2. Include summer, winter, and any special operating instructions.

E. Maintenance Requirements: include routine procedures and guide for trouble-shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.

F. Provide servicing and lubrication schedule, and list of lubricants required.

G. Include manufacturer's printed operation and maintenance instructions.

H. Include sequence of operation by controls manufacturer.

I. Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.

J. Provide installed control diagrams by controls manufacturer.

K. Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.

L. Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.

M. Include test and balancing reports as specified in Section 01 91 13 - General Commissioning Requirements.

1.10 MATERIALS AND FINISHES

A. Building products, applied materials, and finishes: Include product data, with catalogue number, size, composition, and colour and texture designations.

B. Instructions for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.

C. Moisture-protection and weather-exposed products: Include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.

1.11 MAINTENANCE MATERIALS

A. Spare Parts:

1. Provide spare parts, in quantities specified in individual specification Sections.
2. Provide items of same manufacture and quality as items in Work.
3. Deliver to Site or location as directed by Contract Administrator, place and store.
4. Include approved listings in Maintenance Manual.
5. Obtain receipt for delivered products and submit before final payment.

B. Extra Stock Materials:

1. Provide maintenance and extra materials, in quantities specified in individual specification Sections.
2. Provide items of same manufacture and quality as items in Work.
3. Deliver to Site or location as directed by Contract Administrator, place and store.
4. Include approved listings in Maintenance Manual.
5. Obtain receipt for delivered products and submit before final payment

C. Special Tools:

1. Provide special tools, in quantities specified in individual specification Section.
2. Provide items with tags identifying their associated function and equipment
3. Deliver to Site or location as directed by Contract Administrator, place and store.

1.12 DELIVERY, STORAGE, AND HANDLING

A. Store spare parts, maintenance materials, and special tools in manner to prevent damage or deterioration.

B. Store in original and undamaged condition with manufacturer's seal and labels intact.

C. Store components subject to damage from weather in weatherproof enclosures.

D. Store paints and freezable materials in a heated and ventilated room.

E. Contractor to remove and replace damaged products at own expense and for review by Contract Administrator.

1.13 WARRANTIES AND BONDS

A. Develop warranty management plan to contain information relevant to Warranties.

B. Assemble approved warranty information in binder, submit upon acceptance of work and organize binder as follows:

1. Separate each warranty or bond with index tab sheets keyed to Table of Contents listing.

2. List Subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.

3. Obtain warranties and bonds, executed in duplicate by Subcontractors, suppliers, and manufacturers, within ten days after completion of applicable item of work.

4. Verify that documents are in proper form, contain full information, and are notarized.

5. Co-execute submittals when required.

6. Retain warranties and bonds until time specified for submittal.

C. Except for items put into use with Owner's permission, leave date of beginning of time of warranty until Date of Substantial Performance is determined.

D. Include information contained in warranty management plan as follows:

1. Roles and responsibilities of personnel associated with warranty process, including points of contact and telephone numbers within the organizations of Contractors, Subcontractors, manufacturers, or suppliers involved.

2. Listing and status of delivery of Certificates of Warranty for extended warranty items, to include pumps, motors, and commissioned systems.

3. Provide list for each warranted equipment, item, feature of construction or system indicating:

a. Name of item.

b. Model and serial numbers.

c. Location where installed.

d. Name and phone numbers of manufacturers or suppliers.

e. Names, addresses and telephone numbers of sources of spare parts.

f. Warranties and terms of warranty: include one-year overall warranty of construction. Indicate items that have extended warranties and show separate warranty expiration dates.

g. Cross-reference to warranty certificates as applicable.

h. Starting point and duration of warranty period.

i. Summary of maintenance procedures required to continue warranty in force.

j. Cross-Reference to specific pertinent Operation and Maintenance manuals.

k. Organization, names and phone numbers of persons to call for warranty service.

l. Typical response time and repair time expected for various warranted equipment.

4. Procedure and status of tagging of equipment covered by extended warranties.

5. Post copies of instructions near selected pieces of equipment where operation is critical for warranty and/or safety reasons.

E. Respond in timely manner to oral or written notification of required construction warranty repair work.

F. Written verification to follow oral instructions.

1. Failure to respond will be cause for the Contract Administrator to proceed with action against Contractor.

## 1.14 WARRANTY TAGS

A. Tag, at time of installation, each warranted item. Provide durable, oil-and water-resistant tag approved by Contract Administrator.

B. Attach tags with copper wire and spray with waterproof silicone coating.

C. Leave date of acceptance until project is accepted for occupancy.

D. Indicate the following information on tag:

1. Type of product/material.

2. Model number.

3. Serial number.

4. Contract number.

5. Warranty period.

6. Inspector's signature.

7. Construction Contractor.

## PART 2 PRODUCTS

2.01 NOT USED

## PART 3 EXECUTION

3.01 NOT USED

**** END OF SECTION ****

# Section 01 91 13 – Commissioning Requirements

## PART 1 GENERAL

1.01 SECTION INCLUDES

A. General requirements relating to the commissioning of project components and systems, specifying general requirements for performance verification of components, equipment, sub-systems, systems, and integrated systems.

1.02 ADMINISTRATIVE REQUIREMENTS

A. Contract Administrator will observe some or all of the commissioning activities at their discretion.

B. Owner's Performance Testing: Performance testing of equipment or systems by Contract Administrator will not relieve Contractor from compliance with specified start-up and testing procedures.

C. Cooperate fully with Contract Administrator during stages of acceptance and occupancy/use of facility.

D. Coordination with Authorities Having Jurisdiction (AHJ)

1. Where specified start-up, testing or commissioning procedures duplicate verification requirements of AHJ, arrange for authority to witness procedures to avoid duplication of tests and to facilitate an earlier acceptance of facility.

2. Obtain certificates of approval, acceptance, and compliance with rules and regulations of AHJ.

3. Submit copies to Contract Administrator within 5 days of test and with Commissioning report.

E. Observation of Starting and Testing

1. Provide 14 days notice to Contract Administrator before beginning commissioning activities.

2. Owner and/or Contract Administrator will observe start up and testing at their discretion.

F. Excess Administration

1. Contractor shall be responsible for the Owner’s costs related to the Contract Administrator’s excess contract administration if third and subsequent verifications occur where:

a. Verification of reported results fail to receive Contract Administrator's acceptance.

b. Repetition of second verification again fails to receive acceptance.

c. Contract Administrator deems Contractor’s request for second verification was premature.

2. The cost of the Contract Administrator's excess contract administration will be based on a rate of $250 per hour.

1.03 SUBMITTALS

A. Submit all required information in accordance with Section 01 33 00 – Submittal Procedures.

B. Where Commissioning procedures are not specified, submit proposed ones to the Contract Administrator and obtain written acceptance at least 4 weeks before the start of commissioning.

C. Submit additional documentation relating to Commissioning process as required by Contract Administrator.

D. Submit Energy Monitoring and Control Systems sensor calibration certificates.

E. Commissioning Schedule

1. Allow sufficient time for commissioning activities within the project schedule including:

a. Acceptance of commissioning reports.

b. Verification of reported results.

c. Repairs, re-testing, re-commissioning, and re-verification.

d. Training.

F. Start-up Documentation:

1. Assemble start-up documentation and submit to Contract Administrator for review and acceptance before beginning commissioning

2. Start-up documentation to include:

a. Factory and on-site test certificates for specified equipment.

b. Pre-start-up inspection reports.

c. Signed installation/start-up checklists.

d. Start-up reports.

e. Step-by-step description of complete start-up procedures so Contract Administrator and/or Owner can repeat start-up at any time.

G. Submit for review and acceptance:

1. Complete list of proposed instruments and equipment to perform commissioning.

2. List data including, serial number, current calibration certificate, calibration date, calibration expiry date and calibration accuracy.

3. Submit completed Commissioning documentation to Contract Administrator for review and acceptance.

1.04 MAINTENANCE MATERIALS SPECIFICATIONS

A. Supply and document maintenance materials, spare parts, and special tools as specified in other specification Sections.

1.05 SITE CONDITIONS

A. Where Commissioning of weather-dependent, occupancy-dependent, or seasonally-dependent equipment or systems cannot be conducted under near-rated or near-design conditions, extrapolate part-load results to design conditions if acceptable to Contract Administrator with manufacturer's assistance in accordance with equipment manufacturer's instructions, data, and approved formulae.

## PART 2 PRODUCTS

2.01 NOT USED

## PART 3 EXECUTION

3.01 GENERAL

A. Commissioning is a planned program of tests, procedures and checks carried out systematically on systems and integrated systems of the finished Project. Perform Commissioning after systems and integrated systems are completely installed, functional and Contractor's Performance Verification responsibilities have been completed and approved.

1. The objective of commissioning activities is to verify that installed equipment, systems, and integrated systems operate in accordance with Contract Documents and design criteria and intent.

B. Contractor shall perform Commissioning process, troubleshooting, and making adjustments as required.

1. Operate systems at full capacity under various modes to determine if they function correctly and consistently at peak efficiency. Systems should interact with each other as intended in accordance with Contract Documents and design criteria.

2. Make adjustments as needed, during these checks, to enhance performance and meet environmental or user requirements.

3.02 COMMISSIONING OVERVIEW

A. Commissioning cost to be incidental to the line item it best fits.

B. Commissioning activities supplement the site quality control and testing procedures described in relevant technical specification Sections.

C. Commissioning activities include the transfer of critical knowledge to the Owner’s facility operations personnel.

D. Contract Administrator will issue the Acceptance Certificate only after:

1. Commissioning documentation has been received, reviewed for suitability, and reviewed and accepted by Contract Administrator,
2. equipment, components and systems have been commissioned, and
3. O&M training has been completed.

## 3.03 PRE-COMMISSIONING REVIEW

A. Before construction, Contractor is to review the Contract Documents related to the commissioning process.

B. During construction, the Contractor shall coordinate provision, location, and installation of provisions for commissioning.

C. Before commissioning, the Contractor shall verify:

1. That the commissioning plan is up to date, and commissioning requirements and procedures are appropriate.
2. Installation of related components, equipment, systems, and sub-systems are complete.
3. Start-up documentation has been submitted to and approved by the Contract Administrator.
4. Systems have been cleaned thoroughly.
5. As-built system schematics are available.

## 3.04 STARTING AND TESTING

A. Contractor to provide and pay costs for the following:

1. Inspections, including disassembly and re-assembly after approval, and for starting, testing, adjusting, and;
2. Temporary testing equipment

## 3.05 PERFORMANCE VERIFICATION TOLERANCES

A. Application Tolerances:

1. A specified range of acceptable deviations of measured values from specified values or specified design criteria except for special areas that shall be within +/- 10% of specified values.

B. Instrument Accuracy Tolerances:

1. To be of higher order of magnitude than equipment or system being tested.

C. Measurement Tolerances During Verification:

1. Unless otherwise specified, actual values shall be within +/- 2% of recorded values.

## 3.06 MANUFACTURER SERVICES

A. Obtain manufacturer's installation, start-up and operations instructions before start-up of components, equipment and systems, and review with Contract Administrator.

1. Compare completed installation with manufacturer's published data, record discrepancies, and review with manufacturer.
2. Modify procedures that may be detrimental to equipment performance and review with manufacturer before start-up.

B. Integrity of warranties:

1. Use manufacturer's trained start-up personnel where specified in other divisions or where required to maintain integrity of warranty.
2. Verify with manufacturer that testing as specified will not void warranties.

C. Qualifications of manufacturer's personnel:

1. Experienced in design, installation and operation of equipment and systems.
2. Ability to interpret test results accurately.
3. Report results in clear, concise, logical manner.

## 3.07 COMMISSIONING PROCEDURES

A. Verify that equipment and systems are complete, clean, and operating in a normal and safe manner before conducting start-up, testing and commissioning.

B. Conduct start-up and testing in the following distinct phases:

1. Included in delivery and installation:
    a. Verification of conformity to specification, reviewed and accepted shop drawings and completion of product submittals.
    b. Visual inspection of quality of installation.
2. Start-up: Follow accepted start-up procedures.
3. Operational testing: Document equipment performance.
4. System Performance Values: Include repetition of tests after correcting deficiencies.
5. Post-Substantial Performance Verification: To include fine-tuning.

C. Correct deficiencies and obtain acceptance from Contract Administrator after distinct phases have been completed and before beginning the next phase.

D. Document required tests in a manner acceptable to the Contract Administrator.

E. Failure to follow accepted start-up procedures will result in re-evaluation of equipment by an independent testing agency selected the Contract

Administrator. If evaluation report indicates that equipment start-up procedure was deficient and resulted in equipment damage, perform the following:

1. Minor equipment/systems: Perform corrective measures acceptable to Contract Administrator
2. Major equipment/systems: If evaluation report indicates that equipment damage is minor, perform corrective measures acceptable to Contract Administrator.
3. If evaluation report indicates that major equipment damage has occurred, Contract Administrator will reject equipment.
    a. Remove rejected equipment from site and replace with new equipment.
    b. Perform specified start-up procedures on new equipment/systems

3.08 OPERATION AND MAINTENANCE OF EQUIPMENT AND SYSTEMS

A. After start-up, operate and maintain equipment and systems as directed or recommended by equipment/system manufacturer.

B. With manufacturer's assistance, develop written maintenance program and submit to Contract Administrator for review and acceptance before implementation.

C. Operate and maintain systems for length of time required for commissioning to be completed.

D. After completion of commissioning, operate and maintain systems until issuance of certificate of interim acceptance.

3.09 TEST RESULTS

A. If start-up, testing, or performance verification produce unacceptable results, repair, replace or repeat specified starting or performance verification procedures until acceptable results are achieved.

B. Contractor to provide labour and materials, and assume costs for re-commissioning.

3.10 TEMPORARY INSTRUMENTS AND EQUIPMENT

A. Contractor to provide all instruments and equipment required to complete commissioning.

3.11 COMMISSIONING PERFORMANCE VERIFICATION

A. Carry out commissioning under actual operating conditions, over entire operating range, and in all modes, and on independent systems and interacting systems.

B. Commissioning procedures to be repeatable and reported results are to be verifiable.

C. Follow equipment manufacturer's operating instructions.

3.12 PROCEDURES FOR DEFICIENCIES DISCOVERED DURING COMMISSIONING

A. Contractor to correct defects and deficiencies found during the commissioning process. Re-verify equipment and components within the defective or deficient system to verify proper performance, including related systems if requested by the Contract Administrator

B. Costs associated with re-commissioning defective and deficient work is the responsibility of Contractor. Above costs to be in the form of progress payment reductions or hold-back assessments.

3.13 MISCELLANEOUS CHECKS AND ADJUSTING

A. Make adjustments and changes which become apparent as commissioning proceeds.

B. Perform static and operational checks as applicable and as required.

3.14 DEFICIENCIES AND DEFECTS

A. Correct deficiencies and defects found during start-up and commissioning to satisfaction of the Contract Administrator.

B. Report concerns, deficiencies, and defects affecting commissioning to the Contract Administrator in writing. Stop commissioning until problems are rectified. Proceed with written acceptance from the Contract Administrator.

3.15 CLOSEOUT ACTIVITIES

A. Completion of Commissioning

1. Upon completion of commissioning, leave systems in normal operating mode unless otherwise specified.

2. Except for warranty and seasonal verification activities specified in commissioning specifications, complete commissioning before issuance of Interim Certificate of Completion.

a. Commissioning to be considered complete when contract commissioning deliverables have been submitted and accepted by the Contract Administrator.

3. Activities Upon Completion of Commissioning:

a. When changes are made to baseline components or system settings established during commissioning process, provide updated commissioning for affected item.

**** END OF SECTION ****

# Section 01 71 23 – Field Engineering

## PART 1 GENERAL

1.01 SECTION INCLUDES

A. The work described in this section includes field engineering and survey requirements, including Quality Control, Submittals, Project Record Documents and Survey Requirements.

B. The Contractor shall provide as a minimum the following surveying work.

1. Establish and maintain survey control and reference points (survey monuments) throughout the project.
2. Survey existing site features, structures and pipe that impact the work.
3. Survey to provide lines and grades for construction of the works.
4. Survey of as-built work to determine quantities for measurement and payment on a monthly basis.
5. Survey of final as-built work upon completion of the project.
6. Monthly as-built drawings and survey information for quantities with application for progress payments.
7. Final as-built drawings and survey information for use with project record documents.

1.02 QUALITY CONTROL

A. Employ a Land Surveyor acceptable to the Owner.

1.03 SUBMITTALS

A. Submit name, address, and telephone number of Surveyor before starting survey work.

B. On request, submit documentation verifying accuracy of survey work.

1.04 PROJECT RECORD DOCUMENTS

A. Maintain a complete and accurate log of control and survey work as it progresses.

## PART 2 PRODUCTS

2.01 GENERAL

A. Provide drawings in AutoCAD and Adobe Acrobat format acceptable to the Contract Administrator.

B. Provide as-built drawings showing the lines for each structure and pipe system completed for each month. Provide structures, pipe system, and survey points on separate layers in the AutoCAD file.

C. Provide final as-built drawings showing the lines of the structures, lines of the pipe systems, and final surfaces as shown on the “plan” view, “section” view, and “profile” view drawings.

D. Identify pipe type, pipe size, and surface on drawings in an acceptable format approved by the Contract Administrator.

E. Identify elevations of pipes and surfaces (i.e., invert, top of pipe, final surface, etc).

F. Utilize naming conventions and descriptions consistent with drawings and as approved by the Contract Administrator.

G. Provide point lists files including horizontal (x,y) and vertical (z) positions with point descriptions and dates. Points shall be described in a manner acceptable to the Contract Administrator (including list of abbreviations). Provide point lists in MS Excel format.

2.02 AS-BUILT DRAWINGS FOR MONTHLY PROGRESS QUANTITES

A. Provide drawings showing the lines for each structure and pipe system completed for each month. Drawings shall show the entire works completed to date and distinguish between previously completed works separately from current month’s work, in a format acceptable to the Contract Administrator.

B. Provide a list of quantities for work completed for the current month in MS Excel format consistent with the format of the Schedule of Quantities and Prices.

C. Each month’s work shall correspond to the work identified in the monthly progress payment request.

2.03 AS-BUILT DRAWINGS FOR RECORD DOCUMENTS

A. Provide drawings showing the lines for each structure and pipe system completed for the project.

B. Provide a marked up set of printed Issued for Construction Drawings showing as-built conditions. Mark all coordinates and elevations noted on printed drawings with as-built coordinates and elevations. Provide compatible AutoCAD file to Contract Administrator with as-built surveyed points (x,y,z) including connecting lines delineating the as-built surveyed pipe alignment and profiles at the same scales shown on the Drawings.

C. Provide documentation verifying accuracy of survey work.

## PART 3 EXECUTION

### 3.01 EXAMINATION

A. Verify locations of survey control points prior to starting work

B. Before starting any earthwork, Contractor shall review and satisfy itself as to the adequacy and accuracy of the control surveys and data established by Owner. Contractor may make such measurements and surveys as it deems necessary to confirm the Owner's control surveys. Any variances or discrepancies will be resolved by the Owner. When control surveys and data have been established to both parties satisfaction, the Contractor shall indicate his acceptance by signing a copy of the Owner's field survey notes which shall be maintained at the job site throughout the work. Initiation of work without Contractor's signature shall constitute acceptance of control survey work by Contractor.

C. Promptly notify Owner of any discrepancies discovered.

### 3.02 SURVEY REFERENCE POINTS

A. Contractor to locate and protect survey control and reference points.

B. The Contract Administrator and Owner will work with the Contractor to establish the required survey benchmarks for the project. The Consulting Engineer will be responsible for establishing these prior to commencement of the Work.

C. The Contractor shall maintain thereafter, all benchmarks, baselines, property boundaries and other references and construction points, as originally established by the Owner. The Contractor shall be responsible for keeping their accuracy, and pay to the Owner all costs of re-establishing them if they are disturbed.

D. Control datum for survey is NAD 83 UTM, coordinates of six (6) established hubs at the four corners of the landfill property and approximately mid-section on the north and south landfill sides will be provided.

E. Protect Owner's survey control points at all times; preserve permanent reference points during construction.

F. Promptly report to Owner the loss or destruction of any reference point or relocation required because of changes in grades or other reasons.

G. Replace dislocated survey control points based on original survey control. Make no changes without prior written notice to Owner.

### 3.03 GENERAL SURVEY REQUIREMENTS

A. Provide field engineering services. Utilize recognized engineering survey practices.

B. The Contractor shall be responsible for all lay-out and survey control for this Contract. The location and coordinates of established survey monuments will be provided by the Owner.

C. The Contract Administrator may, at any time, check Contractor's survey and layout work but this shall not relieve Contractor of any of his responsibilities to carry out Works to the lines and grades as set out in accordance with Drawings and Specifications.

D. The Contractor shall provide reasonable and necessary opportunities and facilities for setting points and making measurements during the Work.

E. The Contractor shall employ a competent surveyor to assist the Contract Administrator, when required, in checking lines and elevation in the Contractor's layout.

F. All elevations and co-ordinates on the Drawings refer to NAD 83. Elevations/dimensions are generally shown in metres/millimetres.

G. The frequency of surveying must be at a minimum every 20 metres. In addition, more survey points must be picked up if there is any change in properties, for example: bend, diameter, thickness, tee, cross, valve, slotted, perforated, etc.

H. When surveying for volumetric quantities of cuts and fills, survey all surfaces before and after work to a 5 m grid spacing on planar surfaces and at 5 m spacing on all significant slope breaks (ditch centerline, slope crest, slope toe, etc.).

I. For all quantity control surveying, conduct survey and present to Contract Administrator for approval before placing any new materials over surface. If any volumetric surfaces are not pre-approved by Contract Administrator before being covered up, then Contract Administrator will have authority to infer surfaces based on information available in the Drawings. In that case, Contract Administrator’s interpretation shall be final.

J. The Contractor shall supply all wooden survey stakes and hubs which shall be of good quality.

3.04 FIELD QUALITY CONTROL

A. Alignment and Grade of Piping

1. The Contractor shall provide grade and alignment control during pipe installation process. The Contractor shall provide stakes or similar devices that display relevant information to control work. Grade control devices shall be spaced no greater than 6 metres (20 feet) apart over the entire length of pipe and at critical grade breaks or changes in alignment.

2. Provide grade control device showing top of bedding layer design elevation, invert elevation and top of pipe elevation and existing grade elevation. The Contractor shall monitor placement of pipe to verify grade and alignment tolerance are met.

3. The Contractor shall immediately set new grade markers that have been disturbed.

4. The Contractor shall demonstrate to the Contract Administrator that installed pipe meets slope (grade), elevations and alignment. At a minimum, the demonstration shall check elevations, slope, and alignment every 3 metres (10 feet) on center.

## 3.05 SURVEY FOR LINES AND GRADES

A. The Contractor shall be responsible for layout of all works.

B. The Contractor shall establish elevations, lines and levels. Locate and lay out by instrumentation and similar appropriate means:

1. Ditches, slope breaks, culverts and pipe center lines.

2. All areas requiring grading cut and / or fill. Control material placement as necessary to achieve desired elevations without overfilling.

3. Site improvements including pavements; stakes for grading, fill and topsoil placement; utility locations, slopes, and invert elevations.

C. Periodically verify layouts by same means.

D. Dimensions for the determination of quantities for payment will be taken from the Drawings where the location of the lines and points determining quantities for payment is not varied during the construction from the locations shown on the Drawings. Where, however, the location of such lines and points is altered during the construction, field measurements will be made by the Contractor's surveyor and reviewed and approved by the Contract Administrator to determine the changed dimensions shown on the Drawings. The Contractor shall notify the Owner before the work is covered up, so that the true dimensions can be established by the Owner. In all cases where the procedure for determination of quantities is not expressly defined in this Contract, the Contract Administrator shall be the sole judge as to which measurements properly define the quantities.

E. The Contractor shall cooperate with the Contract Administrator and provide a surveyor with differentially corrected GPS or similar assistance in checking layout measuring quantities for payment.

F. No payment will be made for the cost to the Contractor of any work or delays occasioned by establishing or checking lines and grades or making other measurements and no extension of time will be allowed for any delay occasioned thereby.

G. The Drawings indicate the intent of the Work and construction details as accurately as is possible. Because of the nature of the work however, minor adjustments may be required in the field to meet specific conditions. Such adjustments shall be made by the Contractor without additional cost to the Owner.

H. The Contractor shall upon commencement of the work, survey all existing facilities, expose any work required and make any measurements required, to confirm the accuracy of the existing facilities prior to ordering, fabricating, or constructing any piece of work.

I. The Contractor shall verify all elevations and other survey information contained in the Drawings in the field.

J. The Owner will not entertain extras to the Work due to the Contractor's failure to survey or measure the work properly in advance.

K. Additional requirements for Record Drawings are contained in Schedule 14.

3.06 SURVEY FOR MONTHLY QUANTITIES

A. The Contractor shall measure and record the as-built pipeline information for the work associated with the application for progress payment. The survey information MUST be submitted to the Contract Administrator as part of each progress draw per the survey control requirements. The progress draw will not be processed until the necessary survey information is provided and reviewed for completeness and accuracy.

B. As-built survey information shall include horizontal and vertical locations of installed pipelines at locations and elevations shown on the Drawings and a minimum of every 3 metres (10 feet) on center, at grade breaks, junctions, pipe fittings, valves, and changes in alignment.

C. Pick-up of topography for volume purposes shall be surveyed on a regular 10 x 10 m grid with additional points taken at major grade breaks.

D. Surveys for tracking quantities of geomembrane and geotextile installed shall be taken to outer bottom edge of the anchor trench or to the defined geomembrane limit, with a survey spacing of 5 metres and additional points taken at all bends and major grade breaks.

**** END OF SECTION ****

# Section 03 48 00 – Precast Concrete

## PART 1 GENERAL

1.01 SECTION INCLUDES

A. All provisions required to install precast concrete in place in relation to the Work.

1.02 REFERENCES

A. ASTM A48 Specification for Gray Iron Castings

B. ASTM C478 Specification for Precast Reinforced Concrete Manhole Sections

C. CSA-A23.1 Concrete Materials and Methods for Concrete Construction

D. CAN/CSA-A23.2 Methods of Testing for Concrete

E. CAN/CSA3-A23.4 Precast Concrete – Materials and Construction

F. CAS A251 Qualification Code for Manufacturers of Architectural and Structural Precast Concrete

G. ASTM C990M Standard Specification for Joints for Concrete Pipe, Manholes, and Precast Box Sections Using Preformed Flexible Joint Sealants

1.03 SUBMITTALS

A. Submittals shall be made in accordance with the provisions of Section 01 33 00 – Submittal Procedures

B. Submit information showing that the products meet all requirements outlined in the Contract Documents.

1. Submit product name, supplier information, and shop drawings including reinforcement details.

## PART 2 PRODUCTS

2.01 MATERIALS

A. Supply precast concrete structures to the dimensions as shown on the Contract Drawings.

B. Concrete wall modules shall be 750mm x 750mm x 1500mm long with a minimum tolerance of plus or minus 3mm for each dimension. Minimum weight of 1900kg per unit.

C. The concrete wall module shall have an internal shear key connection that shall be offset to permit a minimum wall batter of 1H:6V.

D. The concrete shall have a minimum 28 day compressive strength of 20MPa as tested in accordance with ASTM C140. The concrete shall have a minimum moisture absorption rate of 5% to ensure adequate freeze-thaw protection.

2.02 CONCRETE BLOCKS

A. Interlocking concrete blocks shall be Lock-Block or approved alternative acceptable to the Contract Administrator. Concrete shall comply with the following specifications:

| Property | Value |
|---|---|
| Minimum 28-day compressive strength (MPa) | 30 |
| Nominal size of aggregate (mm) | 28 |
| Air content (%) | 5-7 |
| Maximum slump (mm) | 50 ±20 |
| Maximum water/cement ratio by weight | 0.45 |
| Minimum cement content (kg/m3) | 320 |

## PART 3 EXECUTION

A. Retaining walls shall be constructed with precast monolithic concrete blocks in accordance with the dimensions, lines, and grades shown on the Drawings. Blocks shall be 750mm x 750mm x (1500mm or 750mm) long chamfered on all sides, provided with shear keys, with a 12mm clearance around the key, and steel lifting devices. All exposed surfaces shall have a smooth finish conforming to CSA CAN3-A23.4-00 Section 24.3.5 Grade A.

B. Consistency of finish shall be maintained with the use of the same concrete mix (individual blocks shall not contain cold joints) and the same type of form oil for the entire project. Non-exposed surfaces shall be of uniform surface finish, roughly screeded with no open pockets or distortions in excess of 12mm.

C. The Contract Administrator shall reject concrete blocks based on visual and non-destructive methods that confirm the blocks do not conform to these specifications.

D. The top course of blocks shall be supplied flat topped without shear keys, and with recessed lifting devices or inserts.

E. The Contractor shall extract two cores from one lock block for every 50 blocks prior to delivery to the Site. The cores shall be the standard cylinder sizes of 100 mm diameter and 200 mm high. One of these cores will be tested for the compressive strength in accordance with CSA-A23.2-14C and CSA-A23.2-9C. The second core shall be tested for air void analysis in accordance with ASTM C457. If the compressive strength or air void analysis does not meet the

required specifications, the entire 50 blocks will be rejected at the Contractor's cost. The Contractor shall be responsible for insuring that the test results are traceable to each of the 50 block lot tested. The cores shall be taken in the middle of the block along the back face so that the block may still be used if specifications are met. The cored holes shall be patched and sealed using a patching mortar. Blocks without traceable testing documentation will not be accepted for use on the project.

F. Properties of polymeric reinforcement strips (uniaxial geogrid) for walls under 5m in height shall be as shown on the Drawings. The length of strips will vary depending on the height of the concrete blocks. The polymeric reinforcement strips shall be sandwiched between the successive rows of lock blocks and shall extend for the full length shown on the Drawings. It is important that the strips are placed against each other with no gaps between them. No vehicles shall drive directly over the polymeric reinforcement.

**** END OF SECTION ****

# Section 05 50 00 – Miscellaneous Metal Fabrications

## PART 1 GENERAL

1.01 SECTION INCLUDES

A. Miscellaneous metal work, including structural steel, gates, plates, and bars, steel ladders, grating seat angles, handrails, pipes, and miscellaneous supports and guides.

1.02 SUBMITTALS

A. Submit all required information in accordance with Section 01 33 00 – Submittal Procedures

B. Submit shop drawings showing dimensions, details, and necessary accessory items. Detailing work shall conform to CISC Detailing for Steel Construction.

1.03 DELIVERY, HANDLING, AND STORAGE

A. Fabricated metal shall be delivered on long-bed trucks or trailers adequately supported to prevent bending and other damage.

B. Adequate preparations shall be made for unloading and handling prior to delivery of materials.

C. Materials shall be unloaded by hand, by appropriate slings, or other means that will prevent damage.

D. Materials shall be stored above ground in such a manner as to prevent rusting and bending, and shall be protected with waterproof covers and allow for inspection.

## PART 2 PRODUCTS

2.01 GENERAL

A. Materials for miscellaneous metal work shall conform to the following:

| Material | Specification |
|---|---|
| Steel shapes, plates, bars, clips and similar items | ASTM A 36 |
| Steel pipe | ASTM A 53, Type S, Grade B |
| Steel tubing | ASTM A 500, Grade B |
| Stainless steel | ASTM A 320, Type 304 |
| Aluminum | ASTM B 241, Alloy 6061-T6 |

2.02 SEAT ANGLES, MISCELLANEOUS SUPPORTS AND GUIDES

A. Seat angles and supports for grating, supports for floorplates, clips, plates and angles for precast wall panels, lintels and guides for slide gates shall be steel, of sizes shown, and shall be hot-dip galvanized after fabrication.

2.03 METAL FRAMING SYSTEM FOR PIPE SUPPORTS, ANCHORS, AND GUIDES

A. The bolted metal framing system shall be made of channel, fittings, and hardware as defined in the Metal Framing Manufacturers Association Standard Publication MFMA-1.

2.04 MATERIALS AND FINISHES

A. Hot-Dip Galvanized After Fabrication: Channels Hot-Dipped Galvanized After Fabrication shall be made from steel meeting the minimum requirements of ASTM A570, Grade 33. Eighteen gauge (1.2-mm) and lighter channel shall be ASTM A611, Grade C steel. Channels shall be Hot-Dip Galvanized After Fabrication in accordance with ASTM A123. All ¼ (6.3) fittings shall be formed from ASTM A635 steel and Hot-Dip Galvanized After Fabrication in accordance with ASTM A123.

B. Stainless Steel: Stainless Steel Channel and accessories shall be of AISI Type 304 or Type 316 Stainless Steel.

C. Dimensions: Metal Framing Channel shall be cold formed 12 Ga. (2.6), 14 Ga. (1.9), or 16 Ga. (1.5) steel. All channels shall have a nominal overall width of 1 5/8 inch (41.3) and have a 7/8 inch (22.2) slot face opening. All testing and tolerances shall be in accordance with the latest MFMA-1 Standard.

2.05 METAL FRAMING SYSTEM COMPONENTS

A. Components shall be from a single manufacturer such as B-Line System, Inc., Unistrut Corporation, or approved equal and include the following components:

1. Strut Channel – Model B22 or P1000
2. Combination Strut Channel – Model B52A or P4101
3. Pipe Clamp – Model B2400 or P2558
4. Adjustable Brace – Model B634 or P2815
5. Concrete Insert – Model B22I or P3253
6. End Cap – Model B205 and B287 or P1180 and P2280A
7. Spring Nut – Model N226 or P1009
8. Bolt – Model HHCS 3/8 x Size or HHCS037 x Size

2.06 GALVANIZING

A. Hot-Dip Galvanizing: Large structural steel items such as columns and beams shall be galvanized only if specifically shown on the Drawings. Galvanizing by

the hot-dip process shall conform to the applicable requirements of ASTM A 123, A 153, A 384, A 385, and A 386.

B. Field Repair of Galvanizing: Field repair of galvanizing shall be done using Z.R.C. Cold Galvanizing Compound.

2.07 BOLTS, NUTS, AND WASHERS

A. Bolts shall physically conform to ASTM A 193, Grade B8M. Bolt and nut dimensions shall conform to ANSI B18.2. Washer dimension shall conform to ANSI B27.2. Above ground nuts and bolts shall conform to ASTM A 307 unless noted as stainless steel. Carbon steel bolts, nuts and washers shall be hot-dip galvanized after fabrication. All below ground bolts shall be stainless steel. Stainless steel bolts and accessories shall be Type 304 material.

B. Expansion bolts shall be wedge-type bolts, and shall be Molly Parabolt Concrete Anchors. Expansion bolts shall be stainless steel. Components of stainless steel expansion bolts, including nuts, washers and wedges, shall be stainless steel. Minimum embedment lengths and edge distances shall be as recommended by the manufacturer, unless otherwise shown on the Drawings.

2.08 EXPANSION BOLTS

A. Expansion bolts shall be wedge-type bolts, and shall be Molly Parabolt Concrete Anchors. Expansion bolts shall be stainless steel. Components of stainless steel expansion bolts, including nuts, washers and wedges, shall be stainless steel. Minimum embedment lengths and edge distances shall be as recommended by the manufacturer, unless otherwise shown on the Drawings

## PART 3 EXECUTION

3.01 GENERAL

A. Measurements shall be verified at the Project site. Holes shall be punched 1.6mm (1/16-inch) larger than the nominal size of the bolt, unless otherwise specified. No drifting of bolts or enlargement of holes will be allowed to correct misalignment.

B. Dissimilar metals shall be protected from galvanic corrosion by means of pressure tapes, coatings or isolators.

C. Metalwork to be embedded in concrete shall be placed accurately and held in position while the concrete is placed.

D. Structural steel that is completely encased in concrete shall not be galvanized or painted and shall have a clean surface for bonding to concrete.

3.02 FABRICATION

A. Fabrication and workmanship shall be performed in accordance with the CISC. Fabrication, including cutting, drilling, punching, threading, and tapping

required for miscellaneous metal or adjacent work shall be performed prior to hot-dip galvanizing.

3.03 CONNECTIONS

A. Welded: Welding shall be done by operators who have been qualified by tests as prescribed by the Canadian Welding Bureau (CWB) in Standard Procedure to perform the type of work required. The quality of welding shall conform to CWB Structural Welding Code.

B. Bolting: Bolts for structural and miscellaneous steel connections shall extend no further than twice the bolt diameter past the nut. Washers shall be installed at the nut on bolt assemblies. Stacking of nuts or washers on bolts will not be permitted. Bolted connection shall conform to CISC and shall be as shown on the Drawings.

3.04 SEAT ANGLES, SUPPORTS, AND GUIDES

A. Seat angles for grating and supports for floor plates shall be set so that the gratings and floor plates are supported evenly and maintain the grating and floor plates flush with the floor.

3.05 GRATING

A. Openings in concrete surfaces for gratings, floor and miscellaneous cover plates shall be field measured for proper cut-outs and proper size. Holes through gratings and cover plates shall be banded. Dimensions shall be field verified to ensure proper fit prior to ordering. Grating shall be attached to supports with a minimum of four hold-down clips per panel.

3.06 CLEANING

A. After installation, damaged surfaces of shop primed metals shall be cleaned and touched-up with the same material used for the shop coat.

3.07 REPAIR AND GALVANIZING

A. Damaged areas of galvanizing shall be cleaned with mineral spirits followed by wire brushing. After wire brushing, areas shall be cleaned with Z.R.C. metal conditioner and coated with Z.R.C. Cold Galvanizing Compound in accordance with the manufacturer's printed instructions and recommendations.

**** END OF SECTION ****

# Section 05 51 00 – Metal Stairs and Ladders

## PART 1 GENERAL

1.01 SECTION INCLUDES

A. Provisions for industrial, service, and commercial steel stairs; includes metal stair items that may be required.

1.02 REFERENCES

A. ANSI/NAAMM MBG 531 Metal Bar Grating Manual

B. ASTM A53/A5 3M Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless

C. ASTM A307 Standard Specification for Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength.

D. ASTM F3125/F3125M Standard Specification for High Strength Structural Bolts, Steel and Alloy Steel, Heat Treated, 120 ksi (830 MPa) and 150 ksi (1040 MPa) Minimum Tensile Strength, Inch and Metric Dimensions

E. CSA G40.20-[13]/G40.21-[13] General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel

F. CAN/CSA G164-[M92(R2003)] Hot Dip Galvanizing of Irregularly Shaped Articles.

G. CSA W59-[13] Welded Steel Construction (Metal Arc Welding)

H. AMP 510 Metal Stair Manual

1.03 SUBMITTALS

A. Submit all information in accordance with 01 33 00 – Submittal Procedures

B. Product Data:

1. Submit manufacturer's instructions, printed product literature and data sheets for stairs and include product characteristics, performance criteria, physical size, finish and limitations.

C. Shop Drawings:

1. Submit drawings stamped and signed by professional engineer registered or licensed in British Columbia, Canada.

2. Indicate construction details, sizes of steel sections and thickness of steel sheet.

1.04 QUALITY ASSURANCE

A. Test Reports: submit certified test reports showing compliance with specified performance characteristics and physical properties

B. Submit product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements

1.05 DELIVERY, STORAGE AND HANDLING

A. Deliver, store, and handle materials in accordance with manufacturer's written instructions.

B. Deliver materials to site in original factory packaging, labelled with manufacturer's name and address

C. Storage and handling requirements:

1. Store materials off ground in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.

2. Store and protect stairs from nicks, scratches, and blemishes.

3. Replace defective or damaged materials with new

## PART 2 PRODUCTS

2.01 DESIGN REQUIREMENTS:

A. Design metal stair, balustrade and landing construction and connections to National Building Code of Canada (NBC) vertical and horizontal live load requirements.

B. Detail and fabricate stairs to NAAMM Metal Stairs Manual.

2.02 FABRICATION

A. Fabricate in accordance with NAAMM, Metal Stair Manual

B. Weld connections where possible, otherwise bolt connections. Countersink exposed fastenings, cut off bolts flush with nuts. Make exposed connections of same material, colour and finish as base material on which they occur.

C. Accurately form connections with exposed faces flush:

1. Make mitres and joints tight.

2. Make risers of equal height.

3. Grind or file exposed welds and steel sections smooth.

4. Shop fabricate stairs in sections as large and complete as practicable.

2.03 PLATE/GRATING STAIRS

A. Form steel grating treads and landings from metal bar grating to profile indicated and secure to stringers and supports as indicated. Form landings of steel grating and reinforce as required.

2.04 FINISHES

A. Galvanizing: hot dipped galvanizing with zinc coating 600 g/m$^2$ to CAN/CSA-G164.

B. Shop coat primer: to MPI - EXT 5.

C. Zinc primer: zinc rich, ready mix to MPI - EXT 5.2C

2.05 SHOP PAINTING

A. Clean surfaces in accordance with Steel Structures Painting Council Manual Volume 2.

B. Apply one coat of shop primer except interior surfaces of pans.

C. Apply two coats of primer of different colours to parts inaccessible after final assembly.

D. Use primer as prepared by manufacturer without thinning or adding admixtures. Paint on dry surfaces, free from rust, scale, grease. Minimum temperature for painting 7 degrees C.

E. Do not paint surfaces to be field welded.

**PART 3 EXECUTION**

3.01 EXAMINATION

A. Verify conditions of substrates previously constructed.

1. Inform Contract Administrator of unacceptable conditions immediately upon discovery.

2. Proceed with installation only after unacceptable conditions have been remedied.

3.02 INSTALLATION OF STAIRS

A. Install in accordance with NAAMM, Metal Stair Manual

B. Install plumb and true in exact locations, using welded connections wherever possible to provide rigid structure. Provide anchor bolts, bolts and plates for connecting stairs to structure.

C. Hand items over for casting into concrete or building into masonry to appropriate trades together with setting templates.

D. Do welding work in accordance with CSA W59 unless specified otherwise

E. Touch up shop primer to bolts, welds, and burned or scratched surfaces at completion of erection.

3.03 CLEANING

A. Perform cleaning as soon as possible after installation to remove construction and accumulated environmental dirt.

B. Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

3.04 PROTECTION

A. Protect installed products and components from damage during construction.

B. Repair damage to adjacent materials caused by metal stairs and ladders installation.

**** END OF SECTION ****

# Section 10 14 53 -Traffic Signage

## PART 1 GENERAL

1.01 SECTION INCLUDES

A. All provisions related to traffic signage.

1.02 SUBMITTALS

A. All information shall be provided according to Section 01 33 00 – Submittals

B. The Contractor shall submit shop drawings for all traffic signs, which shall include the dimensions, content, colours, and materials of the sign.

## PART 2 PRODUCTS

2.01 SIGN POSTS

A. Sign posts shall be perforated square steel tubing. The perforated square steel tubing will be required in different outside dimensions as noted on the Drawings. The perforated square steel tubing shall be formed from 12 gauge hot rolled steel, conforming to ASTM A1011 Grade 50. The tubing shall be hot dipped galvanized conforming to ASTM A653 Designation G-90 or CSA G164. Steel tubing shall have 7/16” holes on all four sides at 1” centres.

B. Galvanized perforated square steel tubing shall be supplied in continuous lengths, with no splices, and shall be field cut to suit the installation. All field cuts shall be painted with cold galvanizing compound.

C. Signs installed on single or double perforated square steel sign posts shall be sheet aluminum.

2.02 SIGNS

A. Signs smaller than 1200mm x 900mm shall be sheet aluminum. Signs 1200mm x 900mm or larger shall be extruded aluminum.

## PART 3 EXECUTION

3.01 DELIVERY, STORAGE, AND HANDLING

A. The Contractor shall deliver, store, and handle signage on site in a manner that prevents nicks, gouges, and other blemishes from forming on signage.

B. Signs shall be handled so as not to damage them in any way. Slip sheets between signs shall be removed carefully to avoid damage due to adhesion of the slip sheet to the sign.

C. Signs shall be stored on end on dunnage or racks in a dry, covered area, protected from damage. Damaged signs shall be replaced by the Contractor at the Contractor's expense.

D. Any spots where the galvanized finish on sign posts is damaged due to drilling, tapping, reaming, or welding and any surface damage incurred during transportation and erection shall be refinished with cold galvanizing compound. Cold galvanizing compound shall be selected from the Ministry of Transportation's Recognized Products List under the category 'Additional Paint Coatings – Zinc Rich Touch-up Paints and Primers'. The application of cold galvanizing compound shall conform to the Manufacturer's instructions, 'Notes for Use' on the Recognized Products List, and the following:

1. The surface shall be mechanically cleaned with a wire brush or grinder and chemically cleaned to remove all welding flux, paint, grease, oil, rust, scale, or other detrimental foreign matter.
2. The surface shall be absolutely dry and the ambient temperature shall be over 10°C.
3. Uniform coats shall be applied. Each coat shall be as thick as possible without causing runs on the finished surface.

## 3.02 INSTALLATION

A. Perforated square steel tubing sign posts shall be installed on concrete based or direct buried in accordance with SS Drawing SP635.3.6.1.

B. Perforated square steel tubing posts shall be installed plumb and straight.

C. Sheet aluminum signs shall be installed in accordance with SS Drawings SP635-3.6.1 through SP635-3.6.4.

D. All sign installations shall meet the requirements of the most current edition of the Ministry of Transportation's *Manual of Standard Traffic Signs and Pavement Markings*.

E. Signs shall be completely covered with a suitable grade of polyethylene sheeting from the time they are installed until the roadway is in full operation, unless otherwise directed by the Contract Administrator. The polyethylene sheeting material shall prevent sign messages from being visible.

F. Taping, screwing, nailing, gluing, bolting or stapling to sign faces or back is prohibited unless otherwise noted.

G. The Contractor shall confirm that signs have the correct messaging. The Contractor shall verify that signs are free of cracks, dents or warpage prior to installation. Any flaws with the sign shall be immediately reported to the Contract Administrator prior to installation. Signs shall be bolted to the mounting hardware or structure as indicated on the applicable Drawings. The sign panels shall be tightened to eliminate sign movement but not over tightened so as to recess the bolt heads into the sign face.

## 3.03 PROTECTION

A. The Contractor shall maintain all signs installed as part of the work within the project area for the duration of the Work. Maintenance shall be performed for the duration of the work in accordance with the following:

B. Sign maintenance shall include the straightening, replacing, repairing, and cleaning of all signs installed as part of the Work. Sign maintenance shall be at the discretion of the Contract Administrator.

C. The Contractor shall regularly inspect the signs to ensure consistent maintenance for maximum visibility.

D. Where directed by the Ministry Representative the Contractor shall clean the signs by power washing or steam cleaning using pressures not exceeding 7 MPa and temperatures not exceeding 65°C. Chemical washing of sign faces is not permitted.

**** END OF SECTION ****

# Section 31 23 02 – Earthwork

## PART 1 GENERAL

1.01 SECTION INCLUDES

A. Excavation and stockpiling of aggregate

B. Furnishing and installing of aggregate

C. Subgrade preparation

D. Preparation of road subgrades

E. Shaping of roadside ditches

1.02 REFERENCES

A. ASTM D422, Standard Test Method for Particle-Size Analysis of Soils.

B. ASTM D698, Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbs/ft3 (600 kN-m/m3)).

C. ASTM D1556, Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method.

D. ASTM D1557, Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbs/ft3 (2,700 kN-m/m3)).

E. ASTM D1586, Standard Test Method for Standard Penetration Test (SPT) and Split-Barrel Sampling of Soils

F. ASTM D1587, Standard Practice for Thin-Walled Tube Sampling of Soils for Geotechnical Purposes.

G. ASTM D2166, Test for Unconfined Compressive Strength of Cohesive Soils.

H. ASTM D2167, Standard Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method.

I. ASTM D2216, Standard Test Methods for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass.

J. ASTM D2321, Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications.

K. ASTM D2487, Standard Classification of Soils for Engineering Purposes (Unified Soil Classification System).

L. ASTM D2573, Standard Test Method for Field Vane Test in Cohesive Soils.

M. ASTM D2937, Standard Test Method for Density of Soil in Place by the Drive Cylinder Method.

N. ASTM D4254, Standard Test Method for Minimum Index Density and Unit Weight of Soils and Calculation of Relative Density.

O. ASTM D4643, Standard Test Method for Determination of Water (Moisture) Content of Soil by the Microwave Oven Heating.

P. ASTM D4944, Standard Test Method for Field Determination of Water (Moisture) Content of Soil by the Calcium Carbide Gas Pressure Tester.

Q. ASTM D4959, Standard Test Method for Determination of Water (Moisture) Content of Soil by Direct Heating.

R. ASTM D6938, Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).

S. MMCD, Master Municipal Construction Documents Association.

1.03 DEFINITIONS

A. Backfill: Soils placed from the excavated surface to the existing grade.

B. Embedment Material: material placed in contact with the pipe and/or conduit (and immediately adjacent to) for the purpose of providing structural support to the pipe and/or conduit. If applicable, the material placed in contact with the pipe for the purpose of providing the porous region for transfer of gas/fluids into the piping system. Embedment material is classified into 3 zones of placement per ASTM D 2321 as follows:

1. Bedding: That material placed from the bottom of the embedment zone to the bottom of the pipe.

2. Haunching: That material placed from the bottom of the pipe to the springline of the pipe.

3. Initial Backfill: That material placed from the springline of the pipe to the top of the embedment zone.

C. Final Backfill Material: For piping systems, that material placed above the embedment zone to the existing or proposed subgrade. For structures, that material placed above the base of the structure to the existing or proposed subgrade.

D. Embankment Material: material placed on or above existing ground surface (also referred to as fill).

E. Foundation Material:

1. For piping systems, material used to stabilize the trench bottom below the embedment zone when unstable conditions are encountered.

2. For structures, slabs, manholes, catch basins and vaults that material placed from the bottom of the excavated surface to the base of the structure.

3. For cover systems, a layer of fine grain (high clay content) soil placed, compacted, and fine graded to allow direct placement of overlying geosynthetic materials.

F. Geotextile: porous synthetic fabric used to provide filtration, separation, or reinforcement of soils in civil engineering works (also referred to as textile or filter fabric).

G. Subgrade: The surface prepared to accept other materials.

H. Unstable trench bottom: The trench bottom shall provide adequate support and stable containment of the embedment material so that the density of the embedment material does not diminish.

1. Unstable conditions include a soft trench bottom that does not provide an adequate working platform or walls that readily slough. Unstable conditions also include materials with high organic content, fine grained soils saturated with water in excess of their liquid limit, low density fine sands or silts, and expansive soils such as "fat" clays and certain shales that exhibit a large change in volume with change in moisture content.

2. In situ soil is considered stable (for cohesive or granular cohesive soils), if the shear strength as measured in accordance with ASTM D2166 or ASTM D2573 is not less than 500 lbs/ft2.

3. In situ soil is considered stable (for sands), if the penetration resistance as determined in accordance with ASTM D1586 is not less than 8 blows per foot.

4. If unstable conditions are encountered, the Contractor shall excavate below grade to such depth and width as directed by the Contract Administrator. The excavated area below grade shall be filled with foundation material in 150-mm (6-inch) compacted layers and brought up to within 150 mm (6 inches) of the bottom of the pipe.

## 1.04 SUBMITTALS

A. Submit surveyed topographic map within area proposed pipeline routes as indicated on the drawings as specified hereinafter. Submit topographic map prior to 10 working days before initiating earthwork.

B. Submit samples of proposed materials to be used in construction, whether excavated and processed from materials on site or imported, for testing and review of testing and inspection service. Submit samples of sufficient size, quantity, and frequency, as determined by the Contract Administrator.

C. Submit laboratory test results and field test results of soils/aggregates used in foundation, embedment, and backfill construction, as specified hereinafter.

D. Submit quality control documentation.

E. Submit a plan showing trench construction sequence and schedule.

F. If dewatering is necessary, submit a plan for controlling site water as specified herein.

G. Submit trench subgrade survey as specified hereinafter.

1.05 QUALITY ASSURANCE

A. Codes and Standards: Perform work in compliance with applicable requirements of governing authorities having jurisdiction and referenced codes and standards.

B. Contractor shall be responsible for daily quality control including: analysis of soil processing operations to insure that the materials produced and installed comply with the gradations and material specifications described hereinafter. Contractor shall employ a qualified testing and inspection agency to provide the necessary quality control testing. The Contractor shall employ a qualified surveying firm to provide specified alignment, grades, and elevations. Contractor shall maintain and submit accurate reports of all quality control testing and surveying. The Owner's testing and inspection service may make periodic random checks of the Contractor's processing and installation operations.

C. All materials intended for use shall be approved by the Contract Administrator prior to placement.

1.06 PROTECTION

A. Protect persons, both on and off the site, from injury. Barricade temporary open excavations occurring as part of the Work with suitable fences and barriers. Equip barriers with warning lights.

B. Protect trees, shrubs, lawns, existing structures, fences, roads, sidewalks, utilities, and other features that are to remain as part of the completed project site.

C. Protect off-site property from damage caused by Contractor's construction operations. Exercise particular care in preventing any disturbed soils, debris, refuse, or other potential pollutants from entering any water course or adjoining property.

D. Do not bring or use explosives on the site unless specified herein.

E. Immediately repair at Contractor's cost all damage caused by construction work.

## PART 2 PRODUCTS

2.01 MATERIALS

A. Aggregate materials for earthwork shall be as per the Contract Documents.

2.02 SOURCE QUALITY CONTROL

A. Soils: Material testing of soils used for foundation, embedment, and final backfill shall be performed to ensure the consistency of the properties of the soil obtained from on or off-site borrow sources. These tests shall be performed by the Contractor prior to processing, placement, compaction and any necessary conditioning. The results of these tests shall be submitted to the Contract Administrator within 10 day after award. At a minimum, the following tests shall be conducted:

**Table 2: Materials Tests for Borrow Source**

| Parameter | Test Method |
|---|---|
| Particle Size of Soils – Washed Sieve | ASTM D422 |
| Moisture/Density Relationship | ASTM D1557 (2) |
| Notes: | 1. Frequency: A minimum of three tests shall be conducted per borrow source. Tests will also be conducted when there is a noticeable change in material type as determined by the Contract Administrator.<br>2. ASTM D1557 for soils which exhibit a well-defined moisture-density relationship. ASTM D4254 for soils which do not exhibit a well-defined moisture-density relationship. |

B. Non-PAG Aggregate: Acid Base Accounting testing shall be completed for every 1,000 m3 of supplied 25-75 mm crush and minus 19 mm crush. Supporting test results shall be submitted to the Contract Administrator before or with delivery of the aggregate to the Site.

## PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that survey benchmark and intended elevations for the work are as indicated.

B. Before starting any earthwork, Contractor shall review and satisfy itself as to the adequacy and accuracy of the control surveys and data established by the Owner for the purpose of computing payment quantities. Contractor may make such measurements and surveys as it deems necessary to confirm the Owner's control surveys. Any variances or discrepancies will be resolved by the Contract Administrator. When control surveys and data have been established to both parties satisfaction, the Contractor shall indicate his acceptance by signing a

copy of the Owner's field survey notes which shall be maintained at the job site throughout the work.

C. Verify that materials excavated and processed on site meet the specified requirements.

3.02 PREPARE EXISTING PLAN AND PROFILE SURVEY MAP

A. Prior to conducting any site work the Contractor shall prepare a topographic map which identifies and locates (horizontally and vertically) existing site features and utilities along the pipe routes. The map shall be prepared by a qualified surveying firm to national map accuracy standards. The Contractor shall provide existing elevations and locations along the alignment of the gas main, header, lateral, branch pipes, and condensate pipes at 5 meters (~15 feet) on center and at every change in alignment, grade, well connection, and existing utility(ies)/structure(s). The elevations and locations shall be based on project datum and be accurate to +/- 0.01 meter (~0.05 foot).

Horizontal and vertical locations shall be referenced to project datum. The ground surface shall be indicated with spot elevations. Other features to be identified include existing roads, paved areas, fences, test pits, pipes, manholes, and other visible site features. All features shall be located horizontally and vertically and identified consistent with the plan and legend. The map shall be prepared in digital format and reproducible hard copy formats at the same scale as the plan drawings. Digital format shall be compatible with AutoCAD Version 2013. Digital format shall provide mapping features on separate layers.

3.03 PREPARATION

A. Allow 10 working days after receipt of maps (receipt by Owner) before proceeding with field layout and staking. Notify Owners 3 days in advance prior to conducting work.

B. Locate and layout the required lines, levels, contours, and datum.

C. Identify, flag, and protect known utilities.

3.04 EXCAVATION

A. General

1. Excavation consists of removal of all types of material encountered when establishing required subgrade elevation, trench dimensions and adequate support for elevations, grades and alignment as shown on the Drawings.

2. Unauthorized excavation consists of removal of materials beyond indicated subgrade/grade or finished elevations or dimensions without specific direction of the Contract Administrator. Unauthorized excavation, as well as remedial work directed by Contract Administrator, shall be at Contractor's expense.

3. Remedial Work for Unauthorized Excavation

    1) Under footings, foundation bases, or other structures fill unauthorized excavation by extending bottom elevation of footings, base, or structure to excavation bottom, without altering required top elevation. Lean concrete fill may be used to bring elevations to proper position, when acceptable to the Contract Administrator.

    2) Elsewhere, backfill and compact unauthorized excavations with specified Foundation Material, as determined by Contract Administrator. Compact to a density not less than that specified for the subsequent materials layers.

4. Stability of Excavations: Slope sides of temporary excavations to comply with local codes, ordinances, and authorities having jurisdiction. Provide steel strutted trench boxes, or properly designed sheeting, shoring, and bracing systems where sloping is not possible due to space restrictions or where depth of excavation exceeds 1.2 meters (4 feet), or stability of material being excavated. Maintain sides and slopes of excavation in a safe condition until completion of backfilling.

5. Excavation shall not interfere with normal 45 degree bearing splay of adjacent structure foundations. Underpin adjacent structures which may be damaged by excavation work, including utilities and pipe chases.

6. Material which is part vegetation soil, surfacing, pavement or cover system (such as gravel, pavement, topsoil, and/or barrier soil), shall be separated from other excavated material wherever possible. Such material shall be removed in a manner to separate it clearly from underlying material and shall be stored or disposed of, on the site where directed by the Contract Administrator. Before excavation through any paved surfaces, pavement shall be sawed by means of a power saw, to the width of the trench and so as to minimize damage to pavement outside of the trench limits.

7. Grade top edge of excavation to prevent surface water from draining into excavation.

8. Stockpile excess excavated unprocessed material at locations as directed by Contract Administrator.

9. The Contractor shall take all necessary precautions to protect underground piping during the course of the construction. Some information may be available from the Owner pertaining to the location and existence of underground piping and utilities. The Contractor is responsible for locating and protecting all underground utilities.

10. Schedule all road crossings with Owner and Contract Administrator to minimize disruption to waste disposal operations and traffic. The Contractor shall provide a minimum of 2 week notice of intended road crossing work.

B. Structure Excavation:

1. Excavate subsoil required to accommodate structural foundations, slabs-on-grade and site structures.

2. Extend excavations laterally from structure walls and footings a minimum of 600 mm (2 feet) to allow for clearance for observation and placement and removal of forms.

3. Hand trim excavation. Remove loose matter, water softened subgrade, lumped subsoil, boulders, and rocks.

C. Excavation near Geosynthetics:

1. Request presence of Contract Administrator when excavating near geosynthetics. Do not expose geosynthetics without giving Contract Administrator opportunity for inspection.

2. Provide a "spotter" when using heavy equipment to expose geosynthetics. If using heavy equipment (other than manual labor) to expose geosynthetics, a person must be present during use of heavy equipment to assist the equipment operator in positioning equipment/attachments/tools so as not to damage geosynthetics.

3. Expose existing geosynthetics by carefully removing overlying material without damaging existing geosynthetics.

4. Protect exposed geosynthetics from soil, rock, etc. sloughing off the face of the excavation until the geosynthetics connections are complete and accepted by the Contract Administrator. If a temporary shoring system is used for this purpose, it shall have a flat surface and be heavily padded where in contact with the existing geotextile and geomembrane, so as not to damage or weaken them.

## 3.05 SUBGRADE AND FINISHED SURFACES

A. All areas covered by the work, including excavated and filled sections, shall be uniformly backbladed to the subgrade, or finished ground elevations. The finish surface shall be reasonably smooth and free of irregularities.

B. Area where excavation disrupted a surface system such as vegetation soil, surfacing, pavement or cover system (such as topsoil, gravel, asphalt, and/or barrier soil), shall be restored to the original surfacing.

## 3.06 TOLERANCES

A. Top Surface of Subgrade: Plus or minus 30 mm

## 3.07 FIELD QUALITY CONTROL

A. The following field inspection and testing shall be undertaken:

1. Alignment and Grade Control

a. The Contractor shall provide grade and alignment control during excavation of trenches and during preparation of pipe bedding. The Contractor shall provide stakes or similar devices that display relevant information to control work. Grade control devices shall be spaced no greater than 5 meters (~15 feet) apart over the entire surface and at grade breaks or

changes in alignment. Laser level techniques are acceptable in lieu of grade staking.

b. Provide grade control device showing trench top and bottom of bedding layer design elevation, depth and existing elevation. The Contractor shall monitor fine grading to verify grade and alignment tolerance are met.

c. The Contractor shall immediately set new grade markers to replace any which have been disturbed.

B. Compaction Control

1. Monitoring compaction effort shall be conducted using the tests and frequencies specified in Table 3. Sample locations shall be in a grid pattern. The grid pattern shall be staggered between successive lifts.

2. If tests indicate work does not meet specified requirements, additional tests shall be performed in the immediate vicinity of the failed test. This area shall be tested, the failed area localized and reconstructed in accordance with these specifications and retested at no cost to Owner.

3.08 WATERING

A. The Contractor shall water for dust control as directed by the Contract Administrator. The Contractor shall not waste water. Separate payment will not be made for watering for dust control. All costs for dust control are incidental to the contract and are responsibility of the Contractor, and shall be included in the contract with prices for other bid items.

**Table 3: Required Tests and Observations on Compacted Soil**

| Parameter | Test Method | Minimum Testing Frequency |
|---|---|---|
| Water Content (Rapid) (Note 1) | ASTM D6938<br>ASTM D4643<br>ASTM D4944<br>ASTM D4959 | 5/1000 $m^2$/lift (1.5/1000 ft/lift) (Note 2) |
| Water Content (Note 3) | ASTM D2216 | One in every 10 rapid water content tests (Note 3) |
| Total Density (Rapid) (Note 4) | ASTM D6938<br>ASTM D2937 | 5/1000 $m^2$/lift (1.5/1000 ft/lift) (Notes 2, 4) |
| Total Density (Note 5) | ASTM D1556<br>ASTM D1587<br>ASTM D2167 | One in every 20 rapid density tests (Notes 5, 6) |
| Number of Passes | Observation | 1/1000 $m^2$/lift (0.3/1000 ft/lift) (Note 2) |
| Construction Oversight | Observation | Continuous |

| Table 3: Required Tests and Observations on Compacted Soil | | |
|---|---|---|
| **Parameter** | **Test Method** | **Minimum Testing Frequency** |

Notes:
ASTM D4643 is microwave oven drying, ASTM D4944 is a calcium carbide gas pressure tester method, and ASTM D4959 is a direct heating method, ASTM D6938 is a nuclear method. Direct water content determination (ASTM D2216 is the standard against which nuclear, microwave, or other methods of measurements are calibrated for on-site soils.

In addition, at least one test should be performed each day soil is compacted and additional tests shall be performed in areas for which CQA personnel have reason to suspect inadequate compaction.

Every tenth sample tested with ASTM D4643, D4944, D4959, or D6938, shall be also tested by direct oven drying (ASTM D2216) to aid in identifying any significant, systematic calibration errors.

ASTM D2937 is the drive cylinder method and ASTM D6938 is a nuclear method. These methods, if used, shall be calibrated against the sand cone (ASTM D1556) or rubber balloon (ASTM D2167) for on-site soils. Alternatively, the sand cone or rubber balloon method can be used directly.

Every twentieth sample tested with D6938 shall also be tested (as close as possible to the same test location) with the sand cone (ASTM D1556) or rubber balloon (ASTM D2167) to aid in identifying any systematic calibration errors with D6938.

ASTM D1587 is the method for obtaining an undisturbed sample. The section of undisturbed sample can be cut or trimmed from the sampling tube to determine bulk density. This method shall not be used for soils containing any particles greater than one sixth (> 1/6) the diameter of the sample.

3.09 ACCEPTANCE

A. The work shall be accepted by the Contract Administrator when:

1. Conformance test results meet the requirements of the Contract Documents.
2. Required documentation from the field and laboratory testing laboratories has been received and accepted.
3. All repairs have been completed to the Contract Administrator's satisfaction.
4. Written certification documents, including as built drawings, have been received by the Contract Administrator.

**** END OF SECTION ****

# Section 31 11 00 – Clearing and Grubbing

## PART 1 GENERAL

1.01 SECTION INCLUDES

A. Requirements for clearing, grubbing, close cut clearing, and underbrush clearing.

1.02 DEFINITIONS

A. Clearing: Removal of trees, brush, and other vegetation from a designated area. Clearing is the first step in preparing land for construction or development.

B. Grubbing: Removal of roots, stumps, and other underground vegetation remnants after the initial clearing. Grubbing is essential for preparing the soil for further development or excavation.

C. Underbrush clearing: Focuses on the removal of smaller vegetation, such as shrubs, bushes, and small trees, from beneath larger trees or within a forested area in areas where clearing or close cut clearing is not required. This is often done to reduce fire hazards, improve visibility, or manage the health of a forest by allowing larger trees to thrive without competition from smaller plants.

1.03 ADMINISTRATIVE REQUIREMENTS

A. Preconstruction meetings: Contractor must conduct/attend the site meeting in accordance with Section 01 30 00 – Administrative Requirements to:

1. Verify project requirements: Identify, flag, or otherwise mark items designated to remain.
2. Review delivery, storage, and handling requirements.
3. Review existing surface conditions.
4. Identify the unintended potential environmental impact on existing conditions.

## PART 2 PRODUCTS

2.01 MATERIALS

A. Fill: In accordance with Section 31 23 01 – Excavating, Trenching, and Backfilling.

B. Soil: Free of debris, roots, wood, scrap material, vegetable matter, refuse, soft unsound particles, or deleterious materials.

## PART 3 EXECUTION

3.01 EXAMINATION

A. Contractor to verify substrate and project conditions.

B. Contractor to verify clearing and grubbing work is coordinated with erosion and sedimentation control measures in Section 01 51 01 – Temporary Facilities and Controls.

3.02 PREPARATION

A. Locate and protect utility lines, and preserve in in operating condition active utilities traversing site.

B. Notify the Contract Administrator immediately of damage to, or when unknown existing utility lines are encountered.

C. Notify utility authorities impacted before performing clearing and grubbing work.

3.03 CLEARING

A. Clearing shall be conducted in locations as indicated on the Contract Drawings.

B. Cut off trees, stumps, roots, brush, and other vegetation to ground level.

C. Tree stumps designated to remain shall have herbicide applies to top of stumps.

D. Trees designated to remain shall be pruned as indicated in the Contract Documents.

E. Clear underbrush from areas indicated on the Contract Drawings to ground level.

3.04 GRUBBING

A. Grubbing shall be conducted in locations as indicated on the Contract Drawings.

B. Remove stumps, roots larger than 75mm in diameter, matted roots, other organic debris, and visible rock fragments to a minimum of 200mm below the ground surface from grubbing areas.

C. Remove visible rock fragments and boulders greater than 300mm in any dimension, and stockpile or otherwise remove as directed by the Contract Administrator.

1. Notify the Contract Administrator immediately when unanticipated rock fragments or boulders exceeding these dimensions are encountered.

3.05 FINISHED SURFACE

A. If topsoil is to remain in place, fill depressions resulting from clearing and grubbing operations with fill material, and compact to make surface uniform when existing adjacent ground surface.

B. If topsoil is to be removed, leave the ground surface in condition ready for stripping of topsoil.

## 3.06 CLEANING

A. Clean and remove debris and sediment from drainage devices in work areas, and dispose of as directed by the Contract Administrator.

B. Do not clean equipment in waterbodies or where the wash-water can enter waterbodies.

C. Manage waste as directed by the Contract Administrator.

D. Remove cleared and grubbed materials.

E. Chip and stockpile cleared and grubbed vegetative material on site in locations indicated on the Contract Drawings or as directed by the Contract Administrator.

F. Cut timber greater than 125mm diameter and stockpile as indicated on Contract Drawings or as directed by Contract Administrator.

G. Infested materials:

1. Removal of potentially infested materials from regulated areas are to be accompanied by a movement certificate issued by the Canadian Food Inspection Agency.

    a. Clean vehicles used to transport regulated articles of debris before loading at origin and before departure from the receiving facility.

2. Remove infested materials related to the Mountain Pine Beetle in accordance with provincial and municipal regulations.

## 3.07 PROTECTION

A. Protect existing fencing, trees, shrubs, landscaping, survey benchmarks, utility lines, water courses, or other items designated to remain in place.

**** END OF SECTION ****

# Section 31 14 13 – Soil Stripping and Stockpiling

## PART 1 GENERAL

1.01 SECTION INCLUDES

A. Environmentally responsible procedures for stripping and preservation of topsoil. Geotechnical data may be available for the site to confirm the suitability and depth of topsoil on site.

B. Specification is related to Section 31 11 00 – Clearing and Grubbing.

## PART 2 PRODUCTS

2.01 NOT USED

## PART 3 EXECUTION

3.01 EXAMINATION

A. Verify substrate and project conditions, that areas affected by this work have been cleared and grubbed in accordance with Section 31 11 01 – Clearing and Grubbing.

B. Verify temporary erosion and sedimentation control measures are installed in accordance with Section 01 51 01 – Temporary Facilities and Controls.

C. Verify grades are correct.

3.02 STRIPPING OF TOPSOIL

A. Conduct topsoil stripping procedures in accordance with applicable provincial and municipal requirements.

B. Handle topsoil only when it is dry and warm.

C. Strip topsoil to depths 200mm as indicated on the Contract Documents or as directed by the Contract Administrator.

1. Avoid mixing topsoil with subsoil.

D. Stockpile topsoil in berms in locations as indicated on the Contract Drawings or as directed by the Contract Administrator.

1. Stockpile height: maximum 3 meters.
2. Avoid placing stockpile in low areas where natural drainage or storm water could pond or erode these materials during inclement weather.
3. Avoid driving excavation equipment over topsoil stockpiles.

E. Protect stockpiles from adverse weather conditions, contamination, and compaction.

F. Cover topsoil that has been piled for 30 days with sterile plants, such as ray florets, or grass to maintain the agricultural potential of the soil.

3.03 PREPARATION OF GRADE

A. Grade area only when soil is dry to lessen compaction.

B. Grade soil to establish natural contours to eliminate uneven areas and low spots, and to provide positive drainage.

3.04 CLEANING

A. Dispose of unused topsoil in location on site as directed by the Contract Administrator.

**** END OF SECTION ****

# Section 31 22 13 – Rough Grading

## PART 1 GENERAL

1.01 SECTION INCLUDES

A. Process of rough grading, preparing the ground for construction or use by owner. This section describes fill material and surplus excavated material that is suitable as fill for grading work.

B. Rough grading includes the initial stage of grading where the ground is shaped to meet elevations and contours as outlined in the Contract Documents through the addition or removal of soil and other materials to create a base or foundation for further construction activities.

1.02 RELATED REQUIREMENTS

A. Section 31 11 00 – Clearing and Grubbing

B. Section 31 14 13 – Soil Stripping and Stockpiling

C. Section 31 23 33.01 – Excavating, Trenching, and Backfilling

1.03 REFERENCE STANDARDS

A. ASTM D698-[12] Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft3 (600 kN-m/m3))

B. ASTM D1557-[12] Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft3 (2,700 kN-m/m3))

1.04 EXISTING CONDITIONS

A. Known underground and surface utility lines and buried objects are indicated on the Contract Drawings.

## PART 2 PRODUCTS

2.01 NOT USED

## PART 3 EXECUTION

3.01 EXAMINATION

A. Examine the soil for unsuitable conditions such as surface water, clods, rocks, snow, frost, freezing, mud, large roots, litter, potentially toxic substances, and unstable material.

B. Proof roll the subgrade areas that do not require excavation.

C. Verify subgrades are correct and sloped as indicated in the Contract Drawings.

3.02 PREPARATION

A. Remove litter and unsatisfactory and unstable materials

B. Stake and flag locations of any utilities.

C. Protect existing underground and overhead utilities.

3.03 GRADING

A. Rough grade to levels, profiles, and contours as indicated on the Contract Drawings.

B. Slope rough grade away from buildings and other excavations (minimum 2%).

C. Grade ditches to minimum depth of 300mm unless otherwise specified.

D. In areas of weak soils, remove soil to a minimum depth of 150mm from the surface before placing over existing ground. Maintain fill and existing surface at approximately the same moisture content to facilitate bonding, unless otherwise specified by a professional geotechnical engineer.

E. Compact filled and disturbed areas to provide a solid, unyielding surface. These areas shall be proof rolled in the presence of the Contract Administrator or their representative.

3.04 CLEANING

A. Remove and dispose of surplus material and material that is unsuitable for fill, for grading purposes, or for landscaping purposes as directed by the Contract Administrator.

3.05 PROTECTION

A. Maintain finished surfaces until succeeding material is applied or until reviewed by the Contract Administrator.

**** END OF SECTION ****

# Section 31 25 00 – Erosion Control

## PART 1 GENERAL

1.01 SECTION INCLUDES

A. This section includes supply, installation, and testing procedures for erosion control components. Erosion Control components shall be used as shown on the Drawings, including, but not limited to the following:

1. Loose Straw shall be used for erosion control on slopes
2. Straw wattles shall be used for erosion control in conjunction with Erosion Control Blankets
3. Erosion Control Blankets to be used on steeper slopes above ditches.

1.02 REQUIREMENTS

A. It is the Contractor's obligation to implement and maintain all necessary measures to control all impacted runoff flow from all Work areas and to prevent any impacts to previously closed areas, roads, and all other existing infrastructure.

B. The Contractor shall also take all necessary measures to discharge the clean water from lined areas, into the storm water collection and conveyance system, with emphasize towards designed receiving locations.

1.03 SUBMITTALS

A. Submittals shall be made in accordance with the provisions of Section 01 33 00 - Submittal Procedures.

B. The Contractor shall submit a 1.0 x 1.0 m panel of the Erosion Control Blanket for inspection and testing. The sample shall be submitted uniformly rolled and shall be wrapped in plastic to protect the material from moisture and damage during shipment.

C. The Contractor shall submit a 1.0 m long section of Straw Wattle for inspection and testing. The sample shall be wrapped in plastic to protect the material from moisture and damage during shipment.

D. Provide complete product details, including the following:

1. Name of manufacturer
2. Product type
3. Product grade
4. Lot number
5. Physical dimensions

## PART 2 PRODUCT

2.01 LOOSE STRAW

A. Straw shall provide temporary, degradable erosion control until revegetation occurs. The seed free bales of hay or straw shall be bound with twine, not wire and the straw shall be placed loosely by hand.

B. Straw to be manually spread to achieve uniform coverage of surface with a thin layer of loose straw. Maximum gaps in straw coverage must not be larger than 100 mm. A minimum of 50 percent of surface area shall be covered with straw fibres when examined in detail.

2.02 STRAW WATTLES

A. Straw Wattles shall provide temporary, degradable slope interruption by slowing water velocity to reduce shear stress and soil erosion while enhancing revegetation for a functional longevity of at least 18 months (NOTE: functional longevity may vary depending upon climatic conditions, soil, geographic location, and elevation).

B. The Straw Wattle consists of certified seed free agricultural straw inside a flexible and durable tubular netting with metal clips or knotted ends. The Straw Wattle shall meet the following specification:

| Property | Specification |
|---|---|
| Minimum Diameter | 29.2 cm |
| Wattle Density (± 10%) | 61.25 kg/m$^3$ |
| Wattle Dimension (± 10%) | 3.1 m |

2.03 EROSION CONTROL BLANKET

A. Coconut Fibre Erosion Control Blankets shall be a machine-produced blanket of 100 percent Coconut Fibre (minimum 8 oz/yd$^2$) with double photodegradable polypropylene (PP) net and a functional longevity of up to 12 months. (NOTE: functional longevity may vary depending upon climatic conditions, soil, geographic location, and elevation).

B. The Coconut Fibre Erosion Control Blanket shall meet the following specification:

| Property | ASTM | Minimum Value | Maximum Value |
|---|---|---|---|
| Blanket Weight | D6475 | 250 g/m2 | 300 g/m2 |
| Thickness | D6526 | 6.5 mm | 8.5 mm |
| Tensile Strength MD | D6818 | 2.0 kN/m | 5.5 kN/m |
| Tensile Strength | D6818 | 1.5 kN/m | 3.5 kN/m |

| | | | |
|---|---|---|---|
| Elongation | D6818 | 15.0% | 29.0% |
| Light Penetration | ECTC TASC 00197 | 6% Open | 8% Open |
| Water Absorption | D1117 | 200% | 250% |

C. The blanket shall be of consistent thickness with the straw evenly distributed over the entire area of the blanket. The blanket shall be covered on the top and bottom side with lightweight photodegradable PP netting.

## PART 3 EXECUTION

3.01 PREPARATION

A. Place topsoil before installing Erosion Control, including any necessary application of lime, fertilizer, and seed.

3.02 INSTALLATION

A. Follow manufacturer's installation instructions.

**** END OF SECTION ****

# Section 31 32 19 – Uniaxial Geogrid

## PART 1 GENERAL

1.01 NOT USED

## PART 2 PRODUCTS

2.01 MATERIAL

A. Uniaxial geogrid for use in the lock block wall system shall be Tensar UX 1500 MSE Geogrid or approved equivalent. Any equivalent must meet or exceed the following specifications:

| Property | Required Value | Test Method |
|---|---|---|
| Tensile Strength @ 5% Strain | 52 kN/m | ASTM D6637-10 Method A |
| Ultimate Tensile Strength | 114 kN/m | ASTM D6637-10 Method A |
| Junction Strength | 105 kN/m | ASTM D7737-11 |
| Flexural Stiffness | 5,100,000 mg-cm | ASTM D7748-12 |
| Resistance to Long Term Degradation | 100% | EPA 9090 |
| Resistance to UV Degradation | 95% | ASTM D4355-05 |

B. Material specifications shall be submitted to and approved by the Contract Administrator prior to installation of the geogrid.

**** END OF SECTION ****

# Section 32 12 16 – Asphalt Paving

## PART 1

1.01 SECTION INCLUDES

A. Asphalt paving for roads and parking lots.

1.02 SUBMITTALS

A. Submit all required information in accordance with Section 01 33 00 – Submittal Procedures.

B. Submit job mix formula (JMF), manufacturer's test data, and certification that asphalt cement meets the requirements of this section. JMF shall include:

1. Aggregate gradation values table indicating percentage passing each sieve size.
2. Percentage of asphalt cement.
3. Percentage of each aggregate and mineral filler to be used.
4. Asphalt performance grade.
5. Compaction: Number of hammer blows per side of molded specimen.
6. Lab mixing temperature.
7. Lab compaction temperature.
8. Temperature-viscosity relationship of the asphalt cement.
9. Site mixing and compaction temperatures.
10. Summary tabulation of Marshall stability, flow, air voids, voids in the mineral aggregate, and unit weight vs. asphalt content.
11. Specific gravity and absorption of each aggregate.
12. Percent natural sand.
13. Percent particles with two or more fractured faces in coarse aggregate.
14. Fine aggregate angularity.
15. Percent flat or elongated particles in coarse aggregate.
16. Tensile strength ratio and wet/dry specimen test results.
17. Type and amount of anti-stripping agent (if required).
18. Fiber stabilizer test results (if required).
19. List of all modifiers and additives.
20. Date the JMF was developed.

1.03 DELIVERY, STORAGE, AND HANDLING

A. Deliver and stockpile aggregates in accordance with industry standards, preventing segregation of aggregate within the stockpile. Stockpile a minimum of 50% of the total amount of aggregate required before commencing asphalt mixing operations, unless otherwise approved.

B. When necessary to blend aggregates from one or more sources to produce the required gradation, mixing shall not occur in stockpiles.

## PART 2 PRODUCTS

2.01 MATERIALS

A. Asphalt cement shall conform to CAN CGSB-16.3, penetration grade 80-100.

B. Aggregates shall be Minus 25 Clear Crush Gravel consisting of hard, durable, angular particles, free from clay lumps, cementation, organic material, frozen material, or other deleterious material.

1. Gradation shall conform to specifications of the most recent version of the Master Municipal Construction Documents (MMCD).

2.02 MIX DESIGN

A. Mix design shall be approved by the Contract Administrator before paving work begins.

B. Mix design shall be by the Marshall method to the requirements below.

1. Compaction blows on each face of the test specimen shall be 50.

C. Mix physical requirements:

1. Marshall Stability at 60C (kN minimum): 5.5
2. Flow Value (mm): 2-4
3. Air Voids in Mixture (%): 3-5
4. Voids in Mineral Aggregate (% minimum): 15
5. Index of Retained Stability (% minimum): 75

D. Measure physical requirements as follows:

1. Marshall load and flow value: ASMT D1559
2. Air voids: ASTM D3203
3. Voids in mineral aggregates: Asphalt Institute MS-2, chapter 4
4. Index of Retained Stability: measure in accordance with the Marshall Immersion Test

E. The JMF shall not be changed without prior approval of the Contract Administrator. If a change in material source is proposed, the new JMF shall be

reviewed by the Contract Administrator at least 7 days before paving work begins.

## PART 3 EXECUTION

### 3.01 PLANT AND MIXING REQUIREMENTS

A. Plant and mixing requirements shall conform to the specifications of the Master Municipal Construction Documents.

B. Temporary storage of hot mix:

1. Provide mix storage of sufficient capacity to permit continuous operation.
2. Mix storage must prevent segregation.
3. Asphalt mix must not be stored in bins for greater than three (3) hours.

C. Permissible variation from the JMF (% of total mass):

| Test Property | Specification Limit |
|---|---|
| 4.75mm sieve and larger | JMF ± 5.5 |
| 2.00mm sieve | JMF ± 4.5 |
| 0.425mm sieve | JMF ± 3.5 |
| 0.180mm sieve | JMF ± 2.5 |
| 0.075mm sieve | JMF ± 1.5 |
| % Asphalt Content | JMF ± 0.25 |
| Mix temperature at discharge from plant | JMF ± 0.5°C |

### 3.02 EQUIPMENT

A. Pavers: mechanical grade controlled self powered pavers capable of spreading mix in within specified tolerances, true to line, grade, and crown indicated on the drawings.

B. Rollers: sufficient number of type and weight to obtain specified density of compacted mix.

C. Vibratory rollers:

1. Minimum drum diameter: 1200mm or to suit construction.
2. Maximum amplitude of vibration (machine setting): 0.5mm for lifts less than 40mm thick.

D. Haul trucks: sufficient number and of adequate size, speed, and condition to ensure orderly and continuous operation.

1. Boxes with tight metal bottoms.
2. Covers of sufficient size and weight to completely cover and protect asphalt mix when truck is fully loaded.
3. In cool weather or for long hauls, insulate entire contact area of each truck box.

4. Use only trucks that can be weighed in single operation on scales.

E. Hand tools:

1. Lutes or rakes with covered teeth for spreading and finishing operations.
2. Tamping irons having mass not less than 12kg and bearing area not exceeding 310cm$^2$ for compacting material along curbs, gutters and other structures inaccessible to roller. Mechanical compaction equipment, when approved by Contract Administrator, may be used instead of tamping irons.
3. Straight edges, 3.0 m in length, to test finished surface

3.03 PREPARATION

A. Appy prime coat and/or tack coat in accordance with industry standards prior to paving.

B. Prior to laying asphalt, clean surfaces of loose and foreign material.

3.04 TRANSPORTATION OF MIX

A. Transport mix to job Site in vehicles cleaned of foreign material.

B. Paint or spray truck beds with limewater, soap or detergent solution, or non-petroleum based commercial product, at least daily or as required. Elevate truck bed and thoroughly drain. No excess solution to remain in truck bed.

C. Schedule delivery of material for placing in daylight.

D. Deposit mix from surge or storage silo to trucks in multiple drops to reduce segregation. Do not dribble mix into trucks.

E. Deliver material to paver at uniform rate and in an amount within capacity of paving and compacting equipment.

F. Deliver loads continuously in covered vehicles and immediately spread and compact. Deliver and place mixes at temperature within standard, but not less than 135 C.

3.05 PLACEMENT

A. Place asphalt mixtures only when air temperature is above 5 C.

B. When temperature of surface on which material is to be placed falls below 10 C, provide extra rollers as necessary to obtain required compaction before cooling.

C. Do not place hot-mix asphalt when pools of standing water exist on surface to be paved, during rain, or when surface is damp.

D. Place asphalt concrete in compacted lifts of thickness not exceeding 100mm or as approved by the Contract Administrator.

E. Overlap joints by not less than 300mm.

F. When hand spreading is used:

1. Use approved wood or steel forms, rigidly supported to ensure correct grade and cross section. Use measuring blocks and intermediate strips to aid in obtaining the required cross-section.
2. Distribute material uniformly, do not broadcast material.
3. During spreading operation, thoroughly loosen and uniformly distribute material by lutes or covered rakes. Reject material that has formed into lumps and does not break down readily.
4. After placing and before rolling, check surface with templates and straightedges and correct irregularities.
5. Provide heating equipment to keep hand tools free from asphalt. Control temperature to avoid burning material, and do not use tools at a higher temperature than the temperature of mix being placed.

## 3.06 COMPACTING

A. Roll asphalt continuously to density not less than 97% of the 50 blow Marshall density in accordance with ASTM D1559.

## 3.07 JOINTS

A. General

1. Remove surplus material from surface of previously laid strip. Do not deposit on surface of freshly laid strip.
2. Paint contact surfaces of existing structures such as manholes, curbs or gutters with bituminous material prior to placing adjacent pavement.

B. Transverse Joints

1. Cut back to full depth vertical face and tack face with thin coat of hot asphalt prior to continuing paving.
2. Compact transverse joints to provide smooth surface. Use methods to prevent rounding of compacted surface at joints.
3. Construct feather joints so that thinner portion of joint contains fine graded material obtained by changed mix design or by raking out coarse aggregate in mix. Place and compact joint so that joint is smooth and without visible breaks in grade.

## 3.08 FINISH TOLERANCES

A. Finished asphalt surface to be within 5 mm of design elevation but not uniformly high or low.

B. Finished asphalt surface not to have irregularities exceeding 5 mm when checked with 3.0 m straight edge placed in any direction.

C. Water ponding shall not be permitted on the final surface, and the Contractor will be responsible for any corrections necessary.

3.09 DEFECTIVE WORK

A. Correct irregularities which develop before completion of rolling by loosening surface mix and removing or adding material as required.

B. If irregularities or defects remain after final compaction, remove surface course promptly and lay new material to form true and even surface and compact immediately to specified density.

C. Repair areas showing checking, rippling, or segregation.

3.10 CLEANUP

A. Remove lids or covers from all castings and clean any prime, tack coat or hot-mix asphaltic concrete from frames, lids and covers of all castings.

B. Remove any and all excess materials.

**** END OF SECTION ****

# Section 32 91 19.13 – Topsoil Placement and Grading

## PART 1 GENERAL

1.01 SECTION INCLUDES

A. Topsoil, soil amendments, preparation of surface, placing and spreading of topsoil, and finish grading for landscaping.

1.02 RELATED REQUIREMENTS

A. Section 31 11 00 – Clearing and Grubbing

B. Section 31 14 13 – Soil Stripping and Stockpiling

1.03 SUBMITTALS

A. Submit all required information in accordance with Section 01 33 00 – Submittal Procedures

B. Submit product data including product characteristics, performance criteria, and soil quality testing results for each material source.

C. Submit product data for:

1. Imported topsoil, including the source location, previous land use, and soil analysis report.
2. Soil amendments.
3. Sand.

1.04 DELIVERY, STORAGE, AND HANDLING

A. Handle materials only when in a dry and unfrozen state.

B. Do not disturb wet or frozen soil with 27% or higher clay content.

## PART 2 PRODUCTS

2.01 PERFORMANCE/DESIGN CRITERIA

A. Topsoil and soil amendments shall provide a suitable medium for supporting the intended plant growth.

B. Materials shall be provided without toxic or growth-inhibiting contaminants.

C. pH range: 6.5 to 8.0

D. Fertilizer:

1. Major soil nutrient concentrations per gram of topsoil:
   a. Nitrogen (N): 20 μg to 40 μg
   b. Phosphorous (P): 40 μg to 50 μg

c. Potassium (K): 75 µg to 110 µg

2. Provide calcium (C), magnesium (Mg), sulphur (S), and other micro-nutrients in balanced ratios to support germination and establishment of intended vegetation.

E. Topsoil for hydraulic or broadcast seeding areas may be natural or manufactured, and must be rich in organic matter and mineral elements. Topsoil should be screened and/or free of unwanted large particles such as roots, gravels, and rocks.

2.02 SOIL AMENDMENTS

A. Fertilizers: Industry-accepted mediums containing nitrogen, phosphorus, potassium, and other micro-nutrients suitable to specific plant species or application, or as recommended based on soil test results.

B. Peat moss: Derived from partially decomposed species of horticultural grade sphagnum mosses and free of wood and deleterious material which may prohibit growth.

1. Texture should range from porous to spongy fibrous; fairly elastic; and substantially homogenous.

2. Shredded particle size: 2 to 10 mm.

3. pH range: 3.5 to 6.5

C. Sand: Washed silica sand with medium to coarse texture.

D. Compost: Class A compost, with a Carbon:Nitrogen (C:N) ratio between 10:1 and 30:1.

E. Limestone: Ground agricultural limestone, with gradation to ASTM C602.

## PART 3 EXECUTION

3.01 EXAMINATION

A. Contractor to examine and verify the subgrade to ensure removal of all deleterious materials such as large rocks, sticks, and other woody debris.

B. Contractor to verify subgrades are correct and sloped as indicated on the Contract Drawings.

3.02 TOPSOIL STRIPPING

A. Topsoil shall be stripped in accordance with Section 31 14 13 – Soil Stripping and Stockpiling.

3.03 PLACING AND SPREADING TOPSOIL

A. Place topsoil only after the Contract Administrator has reviewed the prepared subgrade.

B. Spread topsoil during dry conditions in uniform layers not exceeding 150mm, over unfrozen subgrade free of standing water.

C. Spread topsoil as indicated on the Contract Drawings to the following minimum depths after settlement:

1. Seeded areas: 150mm to 200mm
2. Sodded areas: 150mm to 200mm
3. Flower beds: 200mm to 300mm
4. Ground cover areas: 300mm to 500mm

D. Manually spread topsoil/planting soil around trees, shrubs, and obstacles.

E. Establish traffic patterns for equipment to prevent driving on topsoil after it has been spread to avoid compaction.

F. After spreading procedures are complete, cultivate soil.

3.04 FINISH GRADING

A. Grade topsoil to eliminate rough spots and low areas to provide positive drainage.

1. Slope grades: minimum 2% away from buildings.
2. Prepare loose, friable beds by means of cultivation and subsequent raking.

B. Consolidate topsoil to required bulk density

1. Leave surfaces smooth, uniform, and firm against deep foot printing.

C. Finish graded surfaces to be free of:

1. Debris and stones over 50mm diameter.
2. Coarse vegetative material, 10mm diameter and 100mm in length, occupying more than 2% of soil volume.

**** END OF SECTION ****

# Section 32 92 19.16 – Hydraulic Seeding

## PART 1 GENERAL

1.01 SECTION INCLUDES

A. Seed, seed bed preparation, mulch, slurry preparation and application, and maintenance for hydraulic seeding.

1.02 REFERENCE STANDARDS

A. BC Hydro Electrical Safety Resources

B. Canada Seeds Act & Seeds Regulations

C. Weed Control Act & Weed Control Regulation

D. Canada Fertilizers Act & Fertilizers Regulations

1.03 ADMINISTRATIVE REQUIREMENTS

A. Schedule hydraulic seeding to coincide with preparation of soil surface.

1.04 SUBMITTALS

A. Submit all required information in accordance with Section 01 33 00 – Submittal Procedures.

B. Product data: Product literature and data sheets for seeds, mixtures, mulches, tackifiers, fertilizers, liquid soil amendments, and micronutrients, including product characteristics, performance criteria, WHMIS SDSs, and limitations.

C. Samples: at the request of the Contract Administrator, submit 0.5kg containers of each type of fertilizer or seed proposed for use.

D. Test and evaluation reports: Certified test reports showing materials comply with specified performance characteristics and physical properties.

E. A Hydraulic Seeding Plan for areas larger than 1 Ha must be submitted to the Contract Administrator:

1. Volume capacity of hydraulic seeder, in litres.
2. Volume of material to be used per tank.
3. Number of tank loads required per hectare to apply specified slurry mixture per hectare.
4. Submit minimum 7 days before starting work of this section.

F. Qualification statements: Submit proof of specified qualifications when requested by the Contract Administrator.

G. Submit any manufacturer's maintenance instructions with the O&M manual in accordance with Section 01 78 00 – Closeout Submittals.

1.05 DELIVERY, STORAGE, AND HANDLING

A. All hydraulic or rolled erosion control products, seed, mulch, fertilizers, and other dry materials shall be stored in a dry, weather proof storage place and shall be protected from damage by heat, moisture, weather, excessive temperatures, rodents, construction operations, or other causes until the time of seeding.

B. All manufacturer's instructions regarding storage, handling, blending, and installation shall be adhered to unless otherwise approved.

C. Seed shall be supplied in the original sealed packages, with legible labels securely attached, and providing the following information:

1. Suppliers name and address
2. Analysis of the seed mixture – the grade, and the name and percentage by weight of individual seed species.
3. Percentage of Pure Live Seed (PLS) for each species
4. Lot number and crop year for each species in the mix.
5. Net weight (mass)
6. Date and Location of Packaging.

1.06 WARRANTY

A. For seeding, the 12-month warranty period is extended to 24 months.

B. The Contract Administrator may conduct an end-of-warranty site review.

**PART 2 PRODUCTS**

2.01 SEED

A. All seed specified shall be supplied by the Contractor and obtained from a recognized source.

B. All seed supplied shall comply with the requirements of the Canada Seed Act and Seeds Regulations, and the grade standards for that particular crop kind.

C. Seed shall be free of propagules of plant species designated as noxious under the Weed Control Act & Weed Control Regulation, any BC Proposed Prohibited Species, any sweet clover and ay other undesirable contaminants.

D. Seed mixes shall be as shown on Table 1 unless otherwise specified.

E. Legumes and other species palatable to wildlife shall not be included unless otherwise specified.

F. If requested by the Contract Administrator, the Contractor shall provide valid Certificates of Seed Analysis for each species and seed lot to be used.

1. The Certificates of Seed Analysis shall set out details of the seed as specified in the Canada Seeds Act and shall be completely free of any noxious weeds listed on the Weed Control Regulation, any BC proposed prohibited species, any sweet clover and any other undesirable contaminants.

2.02 FERTILIZER

A. Fertilizer shall comply with the provisions of the Canada Fertilizer Act and Seeds Regulations.

B. Fertilizer shall be supplied as per Table 1 of this section unless otherwise specified.

C. All fertilizer shall be a coated, slow release Nitrogen type formation.

2.03 HYDRAULIC EROSION CONTROL PRODCUTS (HECPS)

A. HECPs shall be supplied in weather resistant packages bearing the manufacturer's label, clearly indicating the weight and product name, and shall be protected following the manufacturer's recommendations and protected from climatic conditions, including excessive sunlight to avoid packaging deterioration

B. The fibres shall be dyed green with a water-soluble non-toxic dye that will not stain masonry, concrete, asphalt or painted surfaces, and shall be non-toxic to plant or animal life.

2.04 TACKIFIER

A. Tackifier shall be an organic guar gum or starch base product specifically designed for use with HECPs and/or seeding operations.

B. If supplied separately with a mulch product, the tackifier shall be supplied in packages bearing the manufacturer's label, clearly indicating product name, content, and application instructions.

C. HECPs may contain a pre-mixed tackifier, which shall adhere to mulch to prevent separation during shipment and to avoid chemical agglomeration during mixing in hydraulic mulching equipment.

D. Mulch and tackifier combination products must be premixed and bagged by the manufacturer to ensure quality control.

2.05 WATER

A. Water used for hydraulic seeding operations shall be free of impurities that would inhibit germination and growth or may be harmful to the environment.

B. The Contractor shall be responsible for securing a water source for hydraulic application of materials, including obtaining use permits under the Water Act if water is to be drawn from waterbodies, and for all cost to supply.

## 2.06 TABLE 1

A. Table 1 below provides the standard grass seed mixes and material application rates for revegetation, and is consistent with Table 757-A from the Ministry of Transportation's Standard Specifications for Highway Construction.

B. Fertilizer N-P-K proportions shall be as recommended by soil testing or in accordance with Table 1.

C. Average annual precipitation values may be found online, including from Environment Canada at https://climate.weather.gc.ca/climate_normals/index_e.html

| CLIMATIC AREA | STANDARD MIXES (BY WEIGHT) | | APPLICATION |
|---|---|---|---|
| **South Coast** | **Vancouver Island/Coast Mix** | | |
| | Canada bluegrass | 5% | General seeding coastal locations where mean annual precipitation is > 90cm. |
| | Creeping Red Fescue | 29% | |
| | Hard Fescue/Sheep Fescue | 17% | Fertilizer: 16-32-6, or pre-approved equivalent |
| | Perennial Ryegrass | 37% | |
| | Redtop | 3% | |
| | Timothy | 9% | |
| | **Interior Forestland Mix** | | |
| | Annual Ryegrass | 11% | General seeding inland where mean annual precipitation is > 50cm |
| | Canada Bluegrass | 3% | |
| | Hard Fescue/Sheep Fescue | 13% | Fertilizer: 16-32-6, or pre-approved equivalent |
| | Intermediate Wheatgrass | 50% | |
| | Perennial Ryegrass | 22% | |
| | Redtop | 1% | |
| | **Interior Dryland Mix** | | |
| | Chested Wheatgrass | 40% | General seeding inland where mean annual precipitation is < 30cm |
| | Hard Fescue | 15% | |
| | Slender Wheatgrass | 20% | Fertilizer: 16-32-6, or pre-approved equivalent |
| | Tall Wheatgrass | 25% | |
| **Thompson -Okanagan** | **Interior Forestland Mix** | | |
| | Annual Ryegrass | 11% | General seeding inland where mean annual precipitation is > 50cm |
| | Canada Bluegrass | 3% | |
| | Hard Fescue/Sheep Fescue | 13% | Fertilizer: 16-32-6, or pre-approved equivalent |
| | Intermediate Wheatgrass | 50% | |
| | Perennial Ryegrass | 22% | |
| | Redtop | 1% | |
| | **Interior Dryland Mix** | | |
| | Chested Wheatgrass | 40% | General seeding inland where mean annual precipitation is < 30cm |
| | Hard Fescue | 15% | |
| | Slender Wheatgrass | 20% | Fertilizer: 16-32-6, or pre-approved equivalent |
| | Tall Wheatgrass | 25% | |

| CLIMATIC AREA | STANDARD MIXES (BY WEIGHT) | | APPLICATION |
|---|---|---|---|
| | **Alkaline Tolerant Blend** | | |
| | Canada Bluegrass | 15% | General seeding in alkaline soils |
| | Crested Wheatgrass | 35% | Fertilizer: 22-11-11, or pre-approved equivalent |
| | Hard Fescue | 25% | |
| | Sherman Big Bluegrass | 25% | |
| **Kootenays** | **Interior Forestland Mix** | | |
| | Annual Ryegrass | 11% | General seeding inland where mean annual precipitation is > 50cm |
| | Canada Bluegrass | 3% | |
| | Hard Fescue/Sheep Fescue | 13% | Fertilizer: 22-11-11, or pre-approved equivalent |
| | Intermediate Wheatgrass | 50% | |
| | Perennial Ryegrass | 22% | |
| | Redtop | 1% | |
| | **Kootenay Dryland** | | |
| | Canada Bluegrass | 3% | General seeding inland where mean annual precipitation is < 50cm |
| | Crested Wheatgrass | 24% | |
| | Hard Fescue/Sheep Fescue | 13% | Fertilizer: 22-11-11, or pre-approved equivalent |
| | Redtop | 1% | |
| | Tall Wheatgrass | 59% | |
| **Northern (Prince George Area)** | **North East General Mix** | | |
| | Creeping Red Fescue | 25% | General seeding inland where mean annual precipitation is > 50cm |
| | Perennial Ryegrass | 30% | |
| | Tall Fescue | 30% | Fertilizer: 26-16-8, or pre-approved equivalent |
| | Timothy | 15% | |
| | **North East Dryland Mix** | | |
| | Creeping Red Fescue | 22% | General seeding inland where mean annual precipitation is < 50cm |
| | Crested Wheatgrass | 38% | |
| | Intermediate Wheatgrass | 40% | Fertilizer: 26-16-8, or pre-approved equivalent |
| **Northern (Terrace Area)** | **North West General Mix** | | |
| | Creeping Red Fescue | 50% | General seeding inland where mean annual precipitation is > 50cm |
| | Timothy | 8% | |
| | Kentucky Bluegrass | 7% | For use in CWH and ICH biogeoclimatic zone. |
| | Hard Fescue/Sheep Fescue | 35% | Fertilizer: 22-11-11, or pre-approved equivalent |
| | **North West Dryland Mix** | | |
| | Intermediate Wheatgrass | 61% | General seeding inland where mean annual precipitation is < 50cm |
| | Crested Wheatgrass | 23% | |
| | Hard Fescue/Sheep Fescue | 15% | For use in SBS biogeoclimatic zone (East of Witset to West of Endako) |
| | Kentucky Bluegrass | 1% | Fertilizer: 22-11-11, or pre-approved equivalent |

| CLIMATIC AREA | STANDARD MIXES (BY WEIGHT) | | APPLICATION |
|---|---|---|---|
| | **Northern Coastal Mix** | | |
| | Intermediate Wheatgrass | 52% | General seeding inland where mean annual precipitation is > 90cm<br>For use in CWH biogeoclimatic zone (Haida Gwaii, Prince Rupert to Pacific)<br>Fertilizer: 22-11-11, or pre-approved equivalent |
| | Kentucky Bluegrass | 12% | |
| | Hard Fescue/Sheep Fescue | 27% | |
| | Timothy | 9% | |
| | **Northern Mix** | | |
| | Crested Wheatgrass | 35% | General seeding inland where mean annual precipitation is > 90cm<br>For use in ICH and BWBS biogeoclimatic zones.<br>- ICH – Pacific to Witset, Kitwanga to Thomas Creek 220km N)<br>- BWBS – Thomas Creek to Yukon Border)<br>Fertilizer: 22-11-11, or pre-approved equivalent |
| | Creeping Red Fescue | 35% | |
| | Kentucky Bluegrass | 30% | |
| **Vancouver Island** | **Vancouver Island/ Coast Mix** | | |
| | Canada Bluegrass | 5% | General seeding coastal locations where mean annual precipitation is > 90cm.<br>Fertilizer: 18-18-18 |
| | Creeping Red Fescue | 29% | |
| | Hard Fescue/Sheep Fescue | 17% | |
| | Perennial Ryegrass | 37% | |
| | Redtop | 3% | |
| | Timothy | 9% | |

## PART 3 EXECUTION

### 3.01 SCHEDULING

A. Hydraulic seeding work shall be scheduled to ensure a minimum duration of on-Site storage of materials, minimum compaction of topsoil, and prompt seeding/mulching operations.

B. The work shall be coordinated with the schedule of other trades, and be well integrated with any erosion control measures required.

### 3.02 PROTECTION

A. Existing Site equipment, roadways, landscaping, reference points, monuments, markers, utilities, and structures shall be protected from damage by hydraulic application method.

B. No overspray is to occur into waterbodies or environmentally sensitive areas. When necessary to ensure protection of these areas, dry, hand broadcasting of materials will be employed.

C. Areas treated with HECPs shall be protected from foot and vehicle traffic, grazing and other disturbances. Any damaged areas that result in disturbance of the continuous mat of HECP materials and exposed soil shall be repaired within 24 hours of notification of the damage.

3.03 SUBSTRATE AND SEEDBED PREPARATION

A. Contractor to ensure that all slopes are geotechnically stable and have been designed to divert runoff away from the face of the slope where required.

B. All pre-existing rills or gullies shall be repaired prior to installation, and slopes shall be suitably roughened to the Contract Administrator's satisfaction.

C. Slopes shall not be left in a smooth or glazed condition that functions to prevent water and plant root infiltration.

D. Slope roughening techniques may include, but not be limited to, track walking, imprinting, harrowing, or placement of woody debris. Indentations must be horizontally installed to the slope rather than vertically, to ensure they function to trap water and seed rather than accelerate erosion. Any slope interruption devices specified shall be correctly installed prior to application of the HECP.

3.04 TIMING OF MATERIAL APPLICATION

A. Material application shall be carried out in accordance with the construction schedule and shall occur as soon as possible following the disturbance.

B. Reseeding during extreme drought or heat may result in failure and should be avoided.

C. Hydraulically applied erosion control products shall not be applied to saturated soils or substrates, and shall not be installed immediately before, during, or after rainfall, such that the slurry will have opportunity to dry for up to 24 hours after installation, unless otherwise approved.

3.05 RATES OF APPLICATION

A. Unless otherwise specified by the manufacturer, standard material application rates for mulch and tackifier shown in Table 1 shall be followed.

B. Fertilizer shall be applied as recommended by soil testing or following Table 1.

C. Site conditions including allowances for increased surface area due to roughening or scarification during substrate and seedbed preparation shall be taken into account when determining quantities of materials required to reach the specified application rates. Application rate may need to be increased by up to 20% for tracked surfaces.

## 3.06 APPLICATION METHOD FOR MECHANICAL DROP OR BROADCAST DRY SEEDING

A. Seed shall be applied in two intersecting directions, and overlap adjoining ground cover by 300 mm except where conditions dictate seeding in one direction only (eg. steep slope).

B. Dry seeding must occur during spring or fall timing windows and shall be installed at a rate of 30kg/ha.

C. Seed shall be raked or rolled into the soil after sowing, and where necessary, may be covered with a layer of thin and continuous layer of straw to help protect the seed from wildlife and prevent erosion

## 3.07 HYDRAULIC APPLICATION OF MATERIALS

A. The hydraulic machine shall be operated in compliance with all applicable safety standards.

B. Materials shall not be sprayed on objects not expected to support plant growth.

C. Existing site equipment, roadways, landscaping, reference points, monuments, markers, utilities, and structures shall be protected from damage by hydraulic application method.

D. HECPs are not intended to be applied in channels, swales, or other areas where concentrated flows are anticipated unless installed in conjunction with RECPs. When necessary to introduce vegetation to these areas, dry, hand broadcasting of materials shall be employed.

E. The Contractor shall be responsible for any overspray or damages incurred during hydroseeding. Any overspray or damage shall be remedied at the Contractor's cost to the satisfaction of the Contract Administrator.

## 3.08 MIXING

A. The required quantities of seed, fertilizer, mulch, tackifier and other material shall be charged into the tank accurately by weight or by an acceptable system of mass calibrated volume measurement, following the manufacturer's specifications.

B. The materials shall be thoroughly mixed into homogeneous water slurry for a minimum of 10 minutes prior to application for each load.

C. All seed shall be added last when mixing. Pellet inoculated seed shall be applied immediately after placement into tank, and if this is not possible, dry application methods must be used. Other seed shall not be left in the tank for unreasonable lengths of time prior to application, i.e. – exceeding one or two hours, particularly when in contact with fertilizer solution.

## 3.09 APPLICATION

A. HECPs shall be applied to form an even, uniform mat blended 150 mm into adjacent vegetated areas or previous mulch applications. HECPs shall be applied from opposing directions to achieve soil coverage except where conditions dictate seeding in one direction only.

B. Treated areas must not be thin with bare patches, or uneven in distribution.

C. The Contractor shall restore disturbed areas beyond the intended boundaries at the direction of the Contract Administrator. Seeded areas that show thin application or bare spots shall be re-treated with the specified materials at the earliest opportunity, weather and season permitting. No additional payment will be made for the repairs.

## 3.10 CLEANUP

A. All surplus and waste materials resulting from seeding operations shall be removed from the job site following completion of the hydraulic seeding work.

B. Hydraulic seeding and/or mulching overspray that may cause problems on areas or objects not designated for re-vegetation shall be removed in an appropriate manner.

**** END OF SECTION ****

# Section 33 81 28 – Scale

## PART 1 GENERAL

1.01 SECTION INCLUDES

A. All provisions for vehicle weigh scale and accessories. Section does not include instrument specifications or logic.

1.02 WARRANTY

A. The scale manufacturer shall warrant the scale assembly including all load cells, weighbridge structure, scale instrument and associated cables from failures due to a defect in manufacturing, workmanship, lightning, or surge voltages.

B. The warranty will warrant the product for a period of 10 years from date of installation or 122 months from date of shipment to the Buyer, whichever occurs first. Bidder shall promptly correct any such defect appearing within the warranty period.

C. The warranty shall support 100% coverage of repair parts, labour, travel time, and mileage from the closest service location, or at the manufacturer's sole discretion, replacement of the product under warranty. The full cost of warranty as specified herein shall be supported by the manufacturer and not in part by any other 3rd party or service provider.

1.03 SUBMITTALS

A. Provide all required information in accordance with Section 01 33 00 – Submittal Procedures

B. Contractor is required to submit all information related to the proposed scale, including shop drawings, product information, and all other relevant items. These will be reviewed by the Contract Administrator, and the Contractor is recommended to wait for feedback prior to placement of the order for the scale.

1.04 CERTIFICATION

A. The scale shall conform to Measurement Canada standards.

B. Contractor shall be responsible for inspection and certification of the scale by Measurement Canada.

## PART 2 PRODUCTS

2.01 SCALE

A. The scale deck shall be 80 feet long and 10 feet wide, and the design shall be approved/sealed by a Professional Engineer licensed to practice in British Columbia.

B. Contractor to provide Engineer of Record for scale design.

C. Contractor to provide load-cell reactions, anchor bolt layouts, and bearing plate details for Contract Administrator Review.

2.02 LOAD CELLS

A. Contractor to provide load cell type, number, and capacity margin.

B. Contractor to provide junction box location and type, and consider accessibility for service.

C. Contractor to provide home run cable, which shall be continuous without splices.

D. Contractor to provide lightning and surge protection for load cells, and grounding design for the system.

E. The scale shall be designed in such a manner that access for load cell replacement can be completed in a simple and efficient manner as determined by the Contract Administrator.

2.03 MAINTENANCE

A. Contractor to provide spare parts list, special tools list, and recommended maintenance intervals as per the manufacturers instructions.

## PART 3 EXECUTION

3.01 SCALE FOUNDATION

A. The foundation shall meet all local requirements and the minimum specifications as stated in this section.

B. The Owner has provided a general foundation design for the Contractor's reference. The Contractor shall review the foundation design for compatibility with the proposed scale and shall notify the Contract Administrator in writing of any modifications required prior to fabrication of the scale. The Contractor remains responsible for the complete and proper function of the scale system, including the interface between the weighbridge and the foundation.

C. The minimum soil bearing required shall be 2,500 pounds per square foot (psf) for a variable footer, 1,500 psf for a beam slab, and 2,000 psf for a pit foundation. The Contractor shall be responsible for determining whether or not the soil conditions are adequate.

D. The foundation shall be constructed to provide positive drainage away from its center.

E. The foundation must be higher than the surrounding grade to promote drainage away from the scale.

F. The foundation shall be poured and constructed of concrete with a minimum strength of 30 MPa at a 28-day cure with 5 to 7% air entrainment.

G. Foundation shall be reinforced as specified in the Contract Documents and shown on the Contract Drawings.

3.02 SURFACE PREPARATION AND FINISH

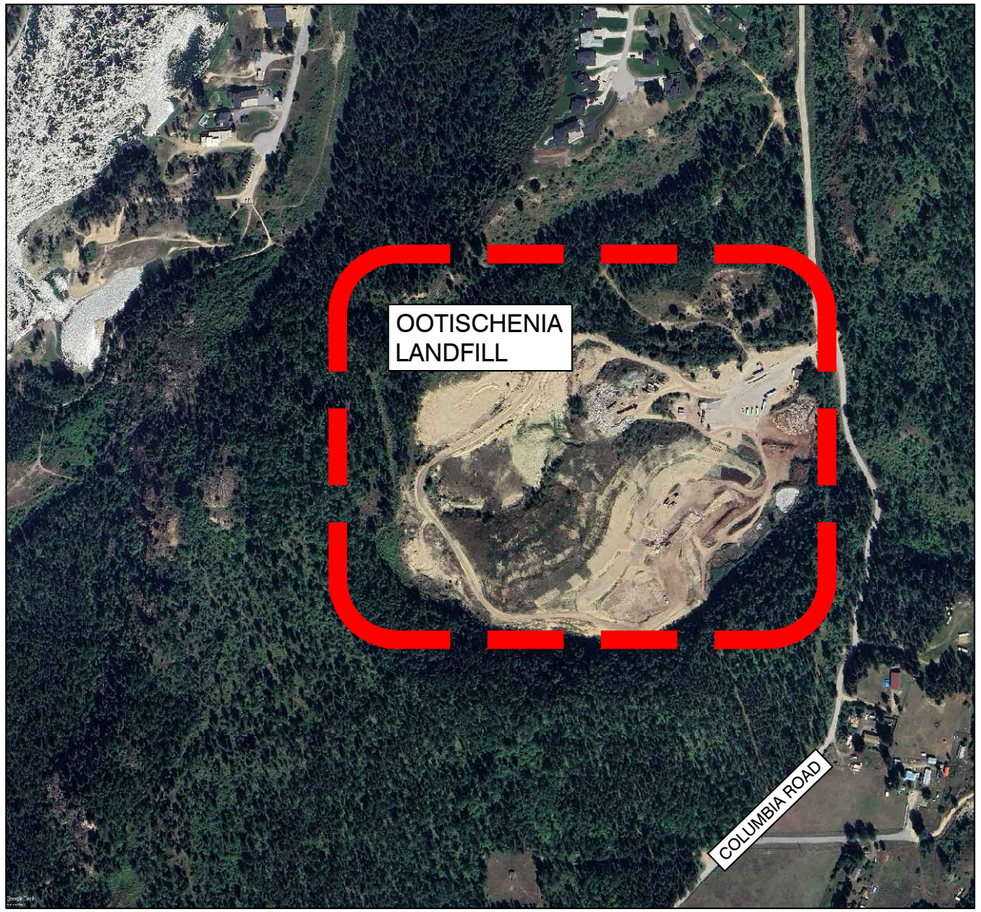
A. The weighbridge shall be shot blasted to a minimum SSPC-SP6 specification prior to painting.

B. All exterior surfaces of the scale shall have a two component, high build epoxy finish, impregnated with aluminum flake for increased corrosion resistance and UV protection, providing total Dry Film Thickness of 5-7 mils; International/Akzo Nobel Intergard 7562 or approved equivalent.

C. The finish shall be force cured to reduce risk of contamination and ensure durability of the surface.

**** END OF SECTION ****

# OOTISCHENIA TRANSFER STATION
# DESIGN AND CONSTRUCTION




| DRAWING LIST | | | |
|---|---|---|---|
| SHEET No. | DWG. No. | REV. | TITLE |
| 000 | 26058-000 | B | COVER SHEET AND LIST OF DRAWINGS |
| 001 | 26058-001 | B | EXISTING TOPOGRAPHY MAR 26, 2026 AND SITE FEATURES |
| 002 | 26058-002 | B | PROPOSED WORK OVERVIEW |
| **100 SERIES - EARTHWORKS** | | | |
| 100 | 26058-100 | B | TRANSFER STATION AND SCALE AREA DESIGN SUBGRADE |
| 101 | 26058-101 | B | TRANSFER STATION AND SCALE AREA DESIGN SUBGRADE EARTHWORKS |
| **200 SERIES - ROAD SYSTEM AND Z-WALL** | | | |
| 200 | 26058-200 | B | TRANSFER STATION FINAL GRADE |
| 201 | 26058-201 | B | TRANSFER STATION BAY SECTION A TO D |
| 202 | 26058-202 | B | LOCK BLOCK WALL PLAN VIEW AND SPECIFICATION |
| 203 | 26058-203 | B | TRANSFER STATION (BAY 3 TO 10) RAILING & BI-FOLD GATE DETAILS |
| 204 | 26058-204 | B | TRANSFER STATION (BAY 1 & 2) RAILING, GATE AND SPILL FLAP DETAILS |
| 205 | 26058-205 | B | TRANSFER STATION (BAY 1 & 2) SPILL FLAP DETAILS |
| **300 SERIES - SURFACE WATER AND WATER MAIN** | | | |
| 300 | 26058-300 | B | SURFACE WATER AND WATER MAIN MANAGEMENT PLAN |
| 301 | 26058-301 | B | SURFACE WATER AND WATER MAIN DETAILS |
| **400 SERIES - INBOUND SCALE** | | | |
| 400 | 26058-400 | B | LANDFILL INBOUND SCALE PLAN |
| 401 | 26058-401 | B | LANDFILL INBOUND SCALE SECTION AND DETAILS |
| 402 | 26058-402 | B | LANDFILL SCALE AND ATTENDANT OFFICE SECTION |
| 403 | 26058-403 | B | TRAFFIC MANAGEMENT AND SIGNAGE PLAN |
| 404 | 26058-404 | B | REINFORCED CONCRETE FOOTING & SLAB PLAN, SECTION & SPECIFICATION 1 (BY OTHERS) |
| 405 | 26058-405 | B | REINFORCED CONCRETE FOOTING & SLAB PLAN, SECTION & SPECIFICATION 2 (BY OTHERS) |

| DRAWING LIST | | | |
|---|---|---|---|
| SHEET No. | DWG. No. | REV. | TITLE |
| **500 SERIES - ELECTRICAL (DESIGNED BY KYSU)** | | | |
| E-00 | 26058-E-00 | B | ELECTRICAL SCHEDULES |
| E-01 | 26058-E-01 | B | ELECTRICAL SITE PLAN |
| E-02 | 26058-E-02 | B | ELECTRICAL DETAILS |
| E-03 | 26058-E-03 | B | ELECTRICAL SPECIFICATION |
| **600 SERIES - SEPTAGE (DESIGNED BY KSP SEPTIC INC.)** | | | |
| S-00 | 26058-S-00 | B | SITE PLAN |
| S-01 | 26058-S-01 | B | SITE PLAN |
| S-02 | 26058-S-02 | B | SITE PLAN - SCALE HOUSE |
| S-03 | 26058-S-03 | B | SITE PLAN - SCALE HOUSE |
| S-04 | 26058-S-04 | B | SITE PLAN - ATTENDANTS SHACK |
| S-05 | 26058-S-05 | B | DISPERSAL FILED |
| S-06 | 26058-S-06 | B | DISPERSAL FIELD |
| S-07 | 26058-S-07 | B | TANK - SCALE HOUSE |
| S-08 | 26058-S-08 | B | TANK - ATTENDANTS SHACK |
| S-09 | 26058-S-09 | B | RISERS |
| S-10 | 26058-S-10 | B | ELECTRICAL NOTES - PUMP CHAMBER |

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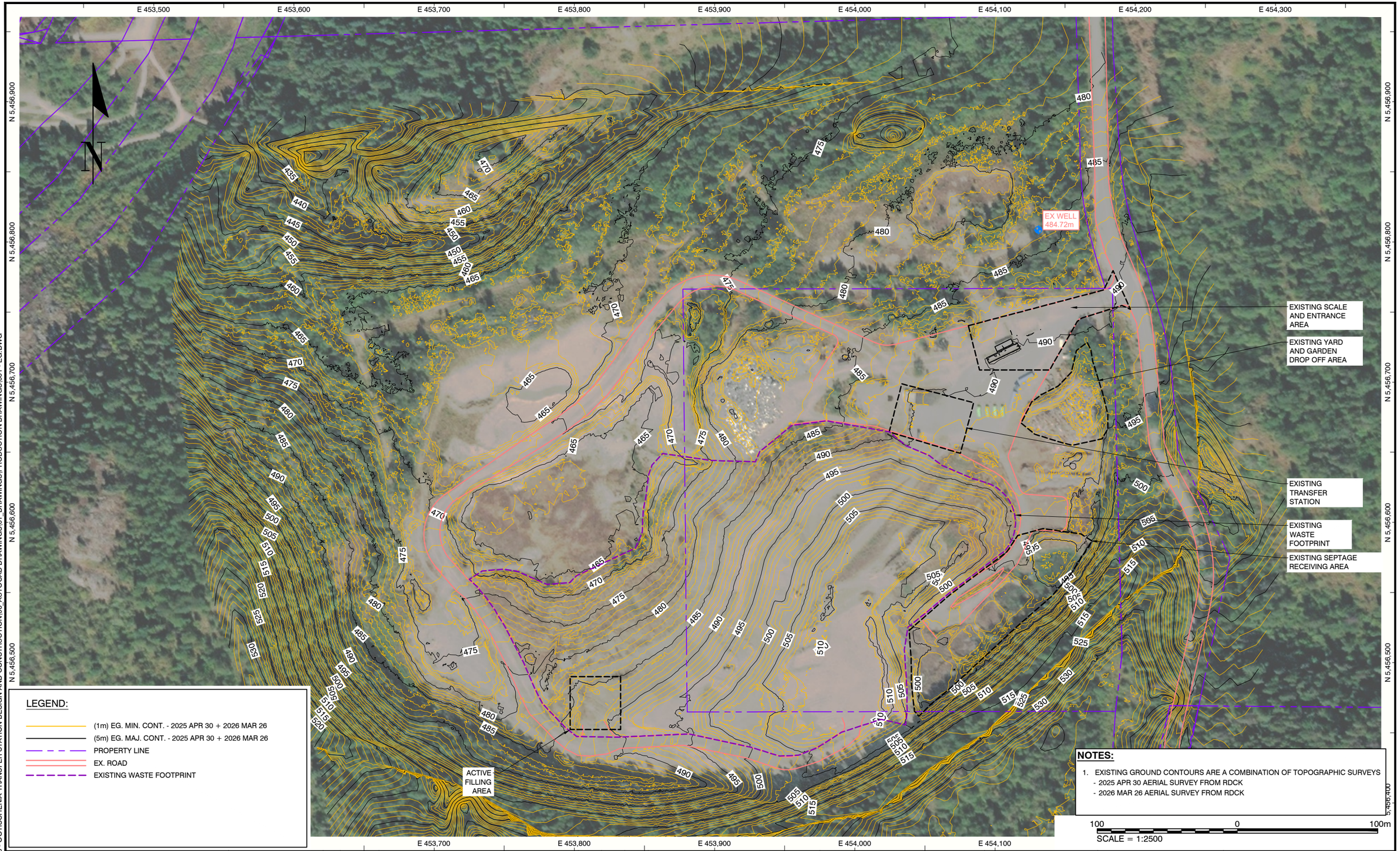
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ADJUST SCALE 50% FOR 34"x22" SHEET

OOTISCHENIA TRANSFER STATION DESIGN AND CONSTRUCTION

**COVER SHEET AND LIST OF DRAWINGS**

| DRAWING NO: | REV | SHEET |
|---|---|---|
| 26058-000 | B | 000 |




LEGEND:

- (1m) EG. MIN. CONT. - 2025 APR 30 + 2026 MAR 26
- (5m) EG. MAJ. CONT. - 2025 APR 30 + 2026 MAR 26
- PROPERTY LINE
- EX. ROAD
- EXISTING WASTE FOOTPRINT

**NOTES:**

1. EXISTING GROUND CONTOURS ARE A COMBINATION OF TOPOGRAPHIC SURVEYS
   - 2025 APR 30 AERIAL SURVEY FROM RDCK
   - 2026 MAR 26 AERIAL SURVEY FROM RDCK

100 0 100m

SCALE = 1:2500

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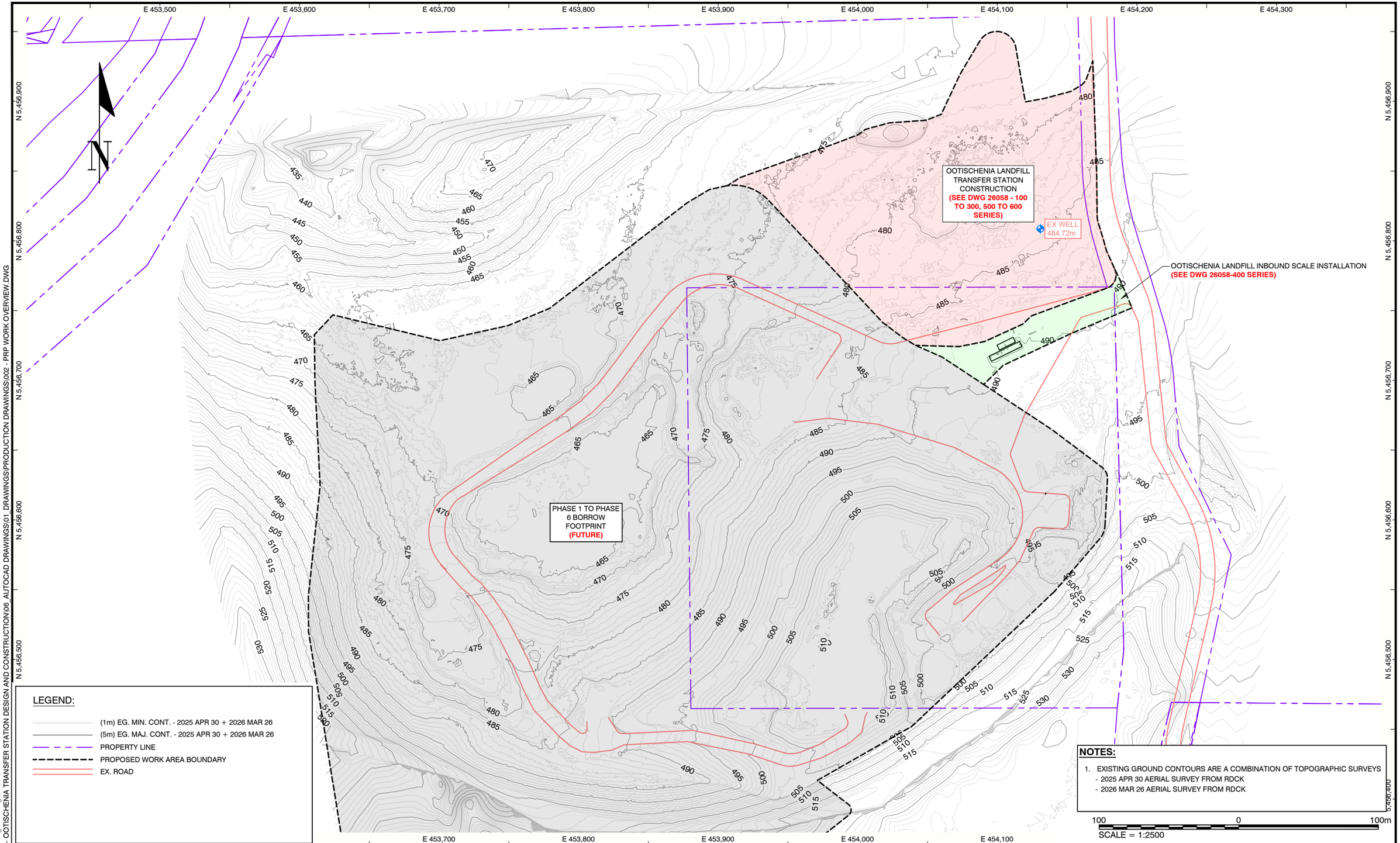
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OOTISCHENIA TRANSFER STATION DESIGN AND CONSTRUCTION

# EXISTING TOPOGRAPHY MAR 26, 2026 AND SITE FEATURES

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|---|---|---|
| 26058-001 | B | 001 |




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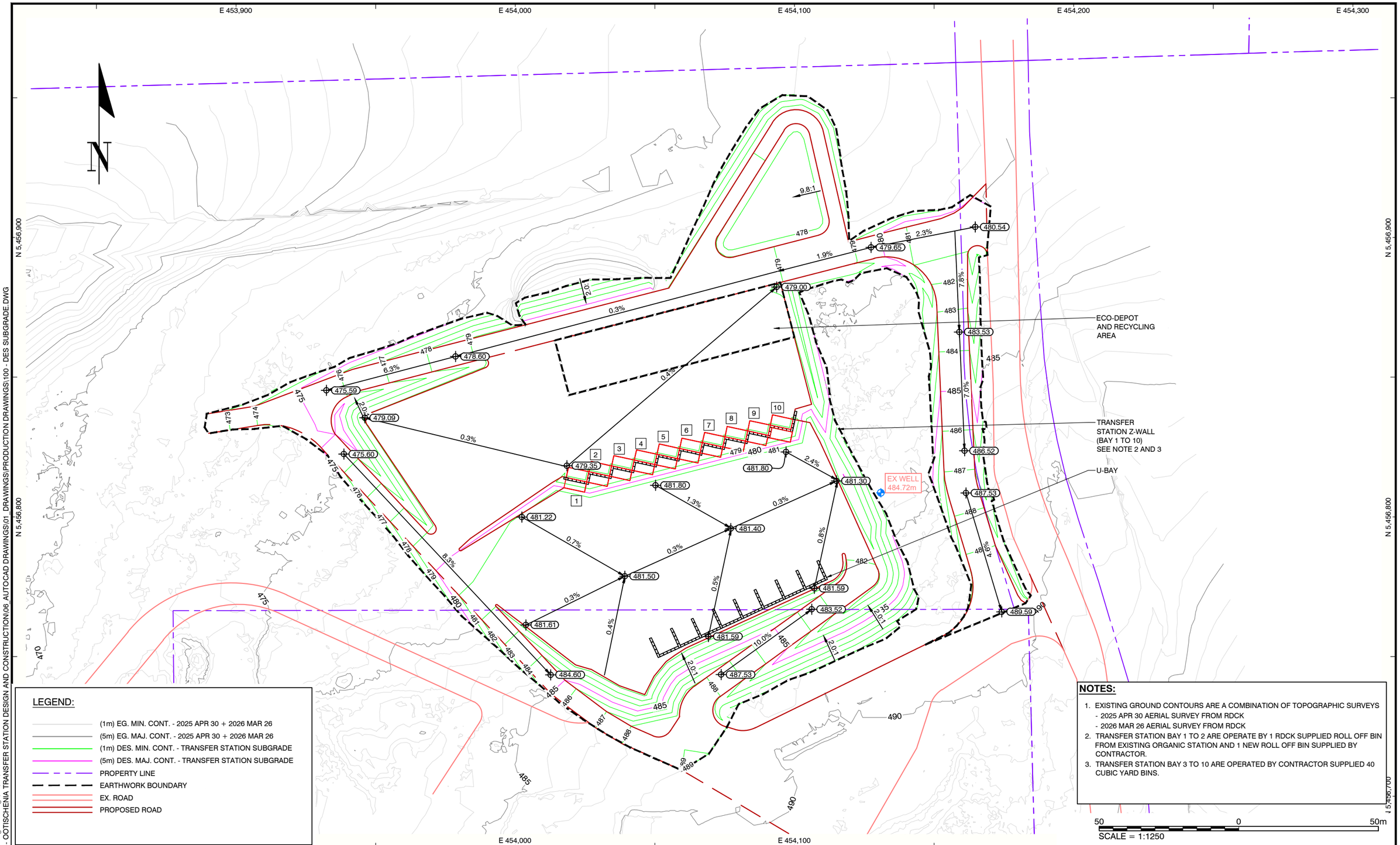
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ADJUST SCALE 50% FOR 34"x22" SHEET

OOTISCHENIA TRANSFER STATION DESIGN AND CONSTRUCTION

# PROPOSED WORK OVERVIEW

| DRAWING NO: | REV | SHEET |
|---|---|---|
| 26058-002 | B | 002 |




## LEGEND:

- (1m) EG. MIN. CONT. - 2025 APR 30 + 2026 MAR 26
- (5m) EG. MAJ. CONT. - 2025 APR 30 + 2026 MAR 26
- (1m) DES. MIN. CONT. - TRANSFER STATION SUBGRADE
- (5m) DES. MAJ. CONT. - TRANSFER STATION SUBGRADE
- PROPERTY LINE
- EARTHWORK BOUNDARY
- EX. ROAD
- PROPOSED ROAD

## NOTES:

1. EXISTING GROUND CONTOURS ARE A COMBINATION OF TOPOGRAPHIC SURVEYS
   - 2025 APR 30 AERIAL SURVEY FROM RDCK
   - 2026 MAR 26 AERIAL SURVEY FROM RDCK
2. TRANSFER STATION BAY 1 TO 2 ARE OPERATE BY 1 RDCK SUPPLIED ROLL OFF BIN FROM EXISTING ORGANIC STATION AND 1 NEW ROLL OFF BIN SUPPLIED BY CONTRACTOR.
3. TRANSFER STATION BAY 3 TO 10 ARE OPERATED BY CONTRACTOR SUPPLIED 40 CUBIC YARD BINS.

50 0 50m

SCALE = 1:1250

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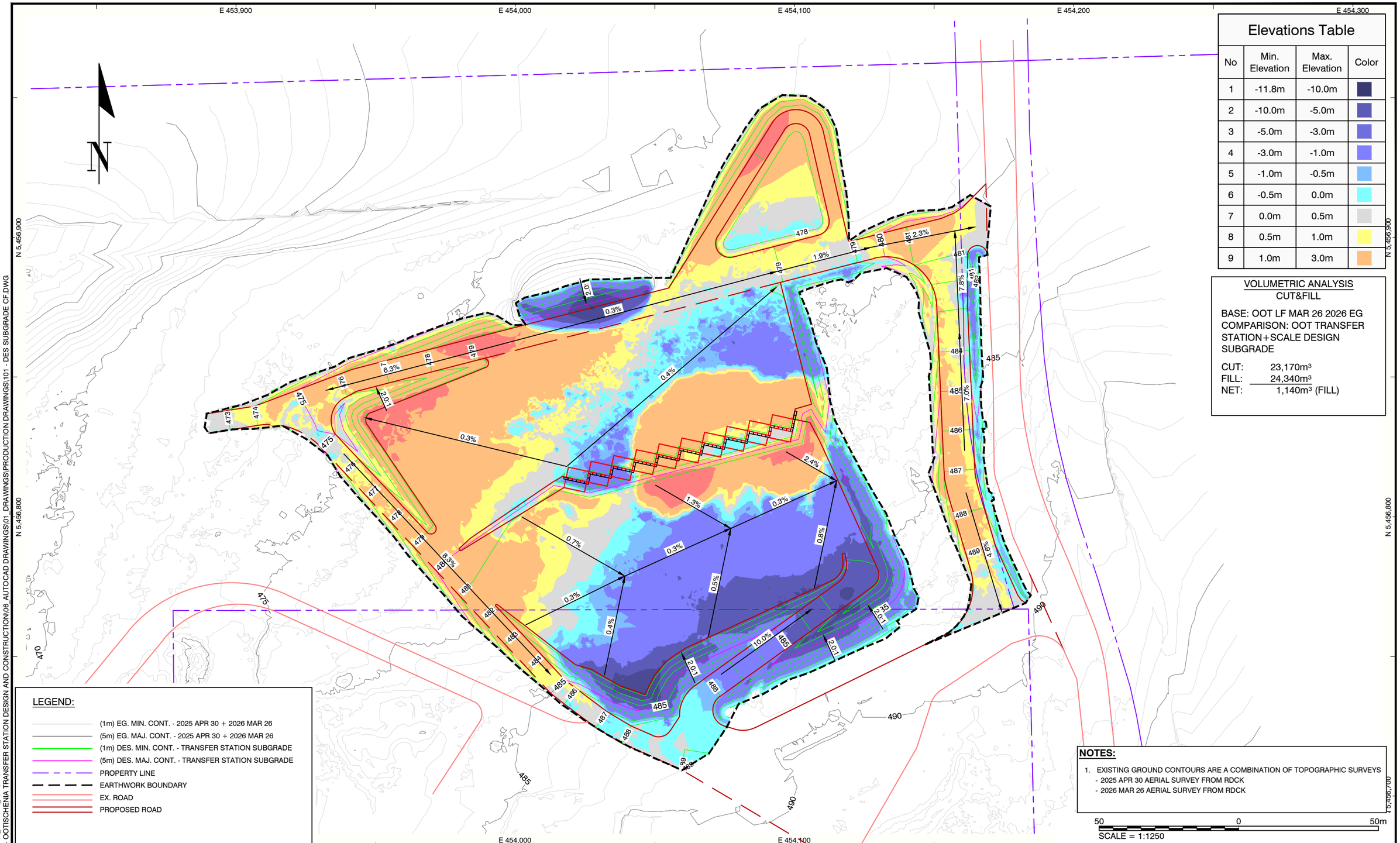
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OOTISCHENIA TRANSFER STATION DESIGN AND CONSTRUCTION

# TRANSFER STATION AND SCALE AREA DESIGN SUBGRADE

| DRAWING NO: | REV | SHEET |
|---|---|---|
| 26058-100 | B | 100 |




## Elevations Table

| No | Min. Elevation | Max. Elevation | Color |
|---|---|---|---|
| 1 | -11.8m | -10.0m | |
| 2 | -10.0m | -5.0m | |
| 3 | -5.0m | -3.0m | |
| 4 | -3.0m | -1.0m | |
| 5 | -1.0m | -0.5m | |
| 6 | -0.5m | 0.0m | |
| 7 | 0.0m | 0.5m | |
| 8 | 0.5m | 1.0m | |
| 9 | 1.0m | 3.0m | |

**VOLUMETRIC ANALYSIS**
**CUT&FILL**

BASE: OOT LF MAR 26 2026 EG
COMPARISON: OOT TRANSFER STATION+SCALE DESIGN SUBGRADE

CUT: 23,170m³
FILL: 24,340m³
NET: 1,140m³ (FILL)

**LEGEND:**

- (1m) EG. MIN. CONT. - 2025 APR 30 + 2026 MAR 26
- (5m) EG. MAJ. CONT. - 2025 APR 30 + 2026 MAR 26
- (1m) DES. MIN. CONT. - TRANSFER STATION SUBGRADE
- (5m) DES. MAJ. CONT. - TRANSFER STATION SUBGRADE
- PROPERTY LINE
- EARTHWORK BOUNDARY
- EX. ROAD
- PROPOSED ROAD

**NOTES:**

1. EXISTING GROUND CONTOURS ARE A COMBINATION OF TOPOGRAPHIC SURVEYS
   - 2025 APR 30 AERIAL SURVEY FROM RDCK
   - 2026 MAR 26 AERIAL SURVEY FROM RDCK

50 0 50m
SCALE = 1:1250

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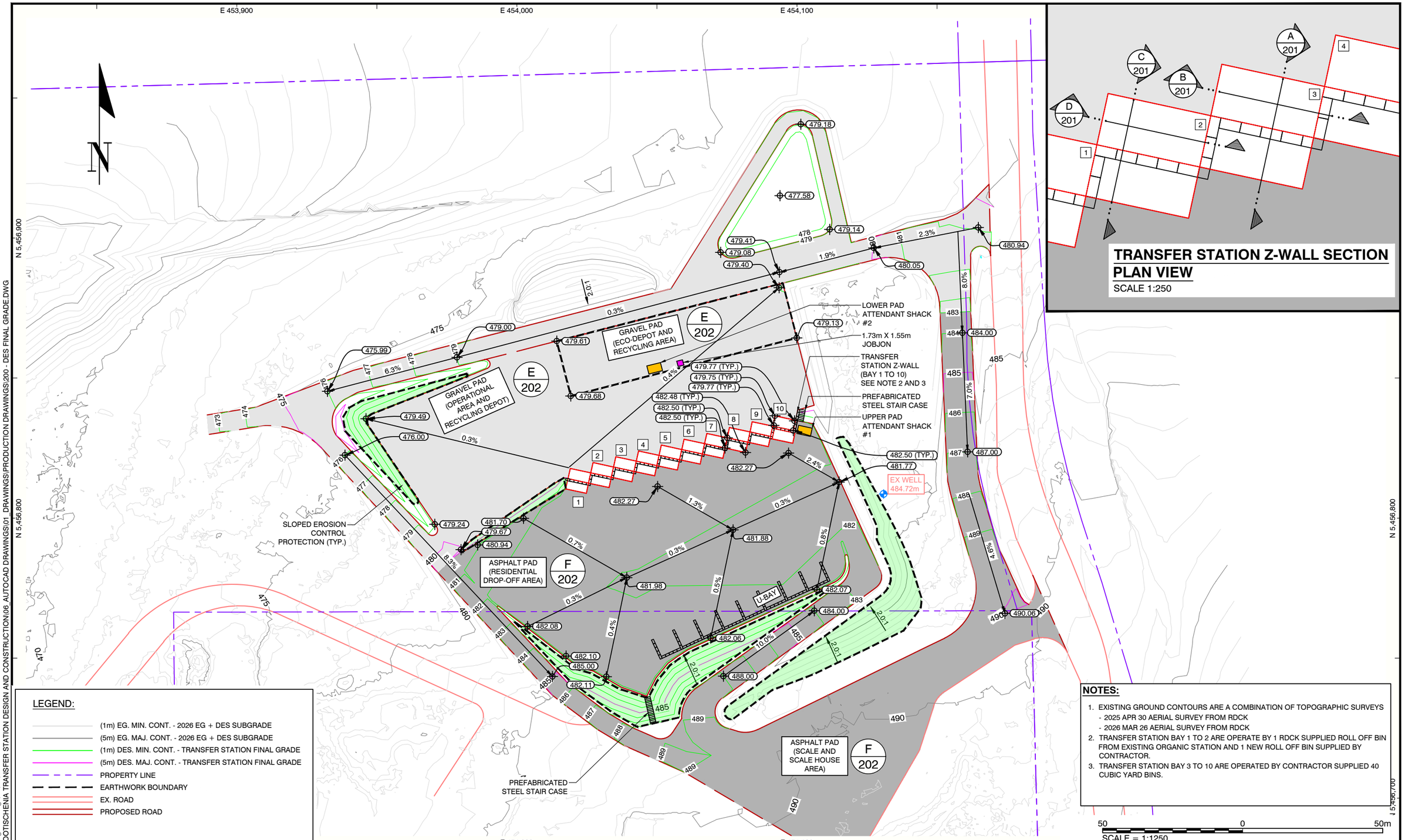
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OOTISCHENIA TRANSFER STATION DESIGN AND CONSTRUCTION

# TRANSFER STATION AND SCALE AREA DESIGN SUBGRADE EARTHWORKS

| DRAWING NO: | REV | SHEET |
|---|---|---|
| 26058-101 | B | 101 |







**TRANSFER STATION Z-WALL SECTION PLAN VIEW**
SCALE 1:250

## LEGEND:

- (1m) EG. MIN. CONT. - 2026 EG + DES SUBGRADE
- (5m) EG. MAJ. CONT. - 2026 EG + DES SUBGRADE
- (1m) DES. MIN. CONT. - TRANSFER STATION FINAL GRADE
- (5m) DES. MAJ. CONT. - TRANSFER STATION FINAL GRADE
- PROPERTY LINE
- EARTHWORK BOUNDARY
- EX. ROAD
- PROPOSED ROAD

## NOTES:

1. EXISTING GROUND CONTOURS ARE A COMBINATION OF TOPOGRAPHIC SURVEYS
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3. TRANSFER STATION BAY 3 TO 10 ARE OPERATED BY CONTRACTOR SUPPLIED 40 CUBIC YARD BINS.

50 0 50m
SCALE = 1:1250


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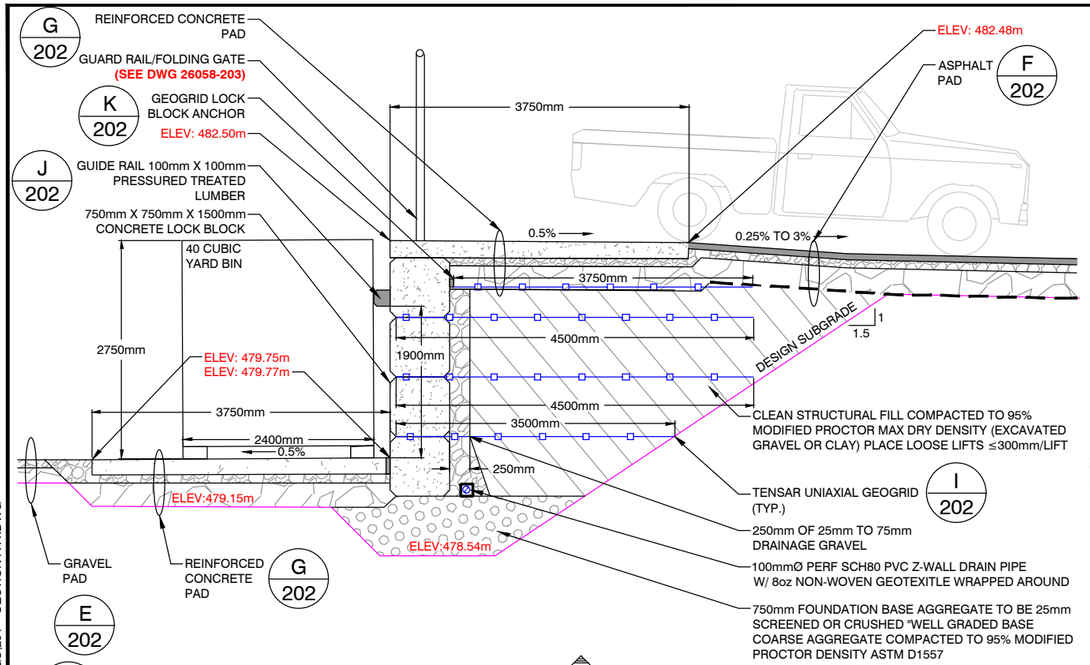
ADJUST SCALE 50% FOR 34"x22" SHEET

OOTISCHENIA TRANSFER STATION DESIGN AND CONSTRUCTION

**TRANSFER STATION FINAL GRADE**

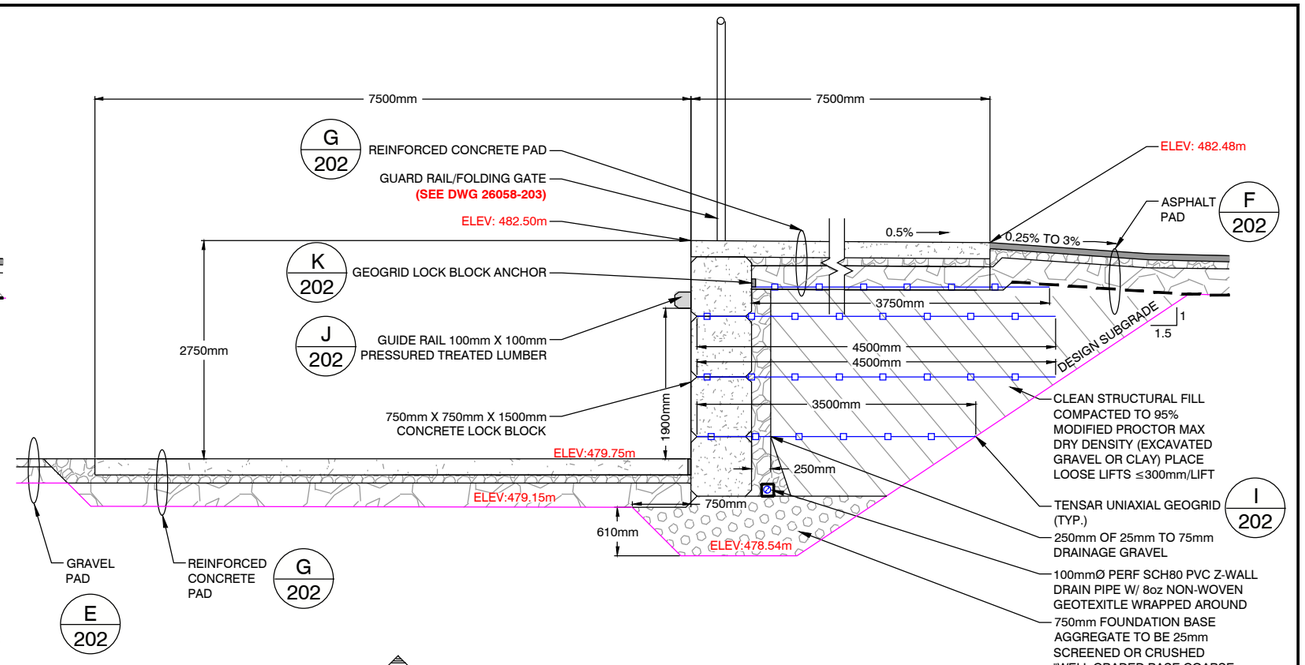
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| 26058-200 | B | 200 |


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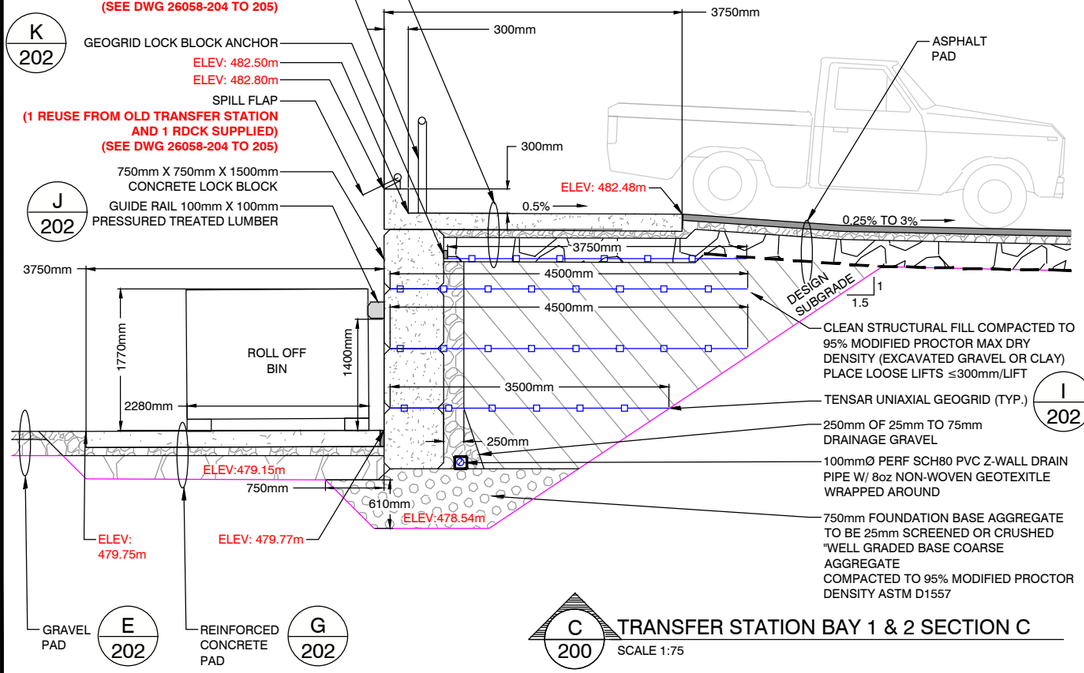

A 200 TRANSFER STATION BAY 3 TO 10 SECTION A

SCALE 1:75



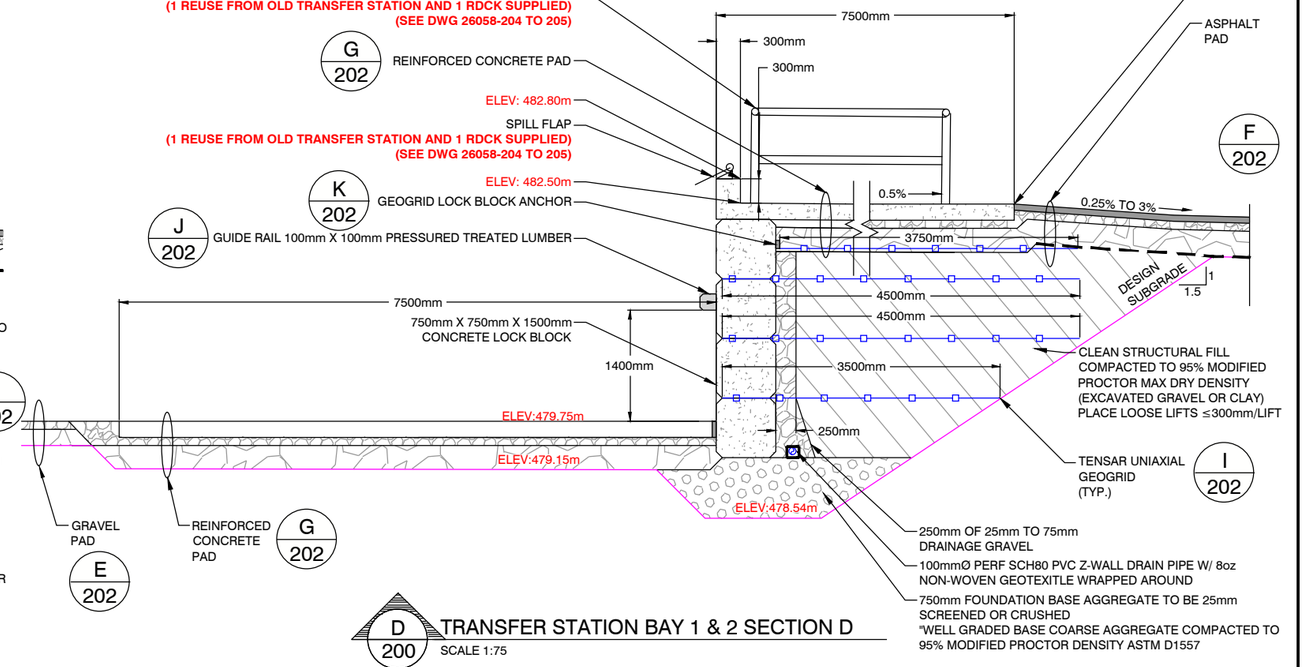

B 200 TRANSFER STATION BAY 3 TO 10 SECTION B

SCALE 1:75




C 200 TRANSFER STATION BAY 1 & 2 SECTION C

SCALE 1:75




D 200 TRANSFER STATION BAY 1 & 2 SECTION D

SCALE 1:75

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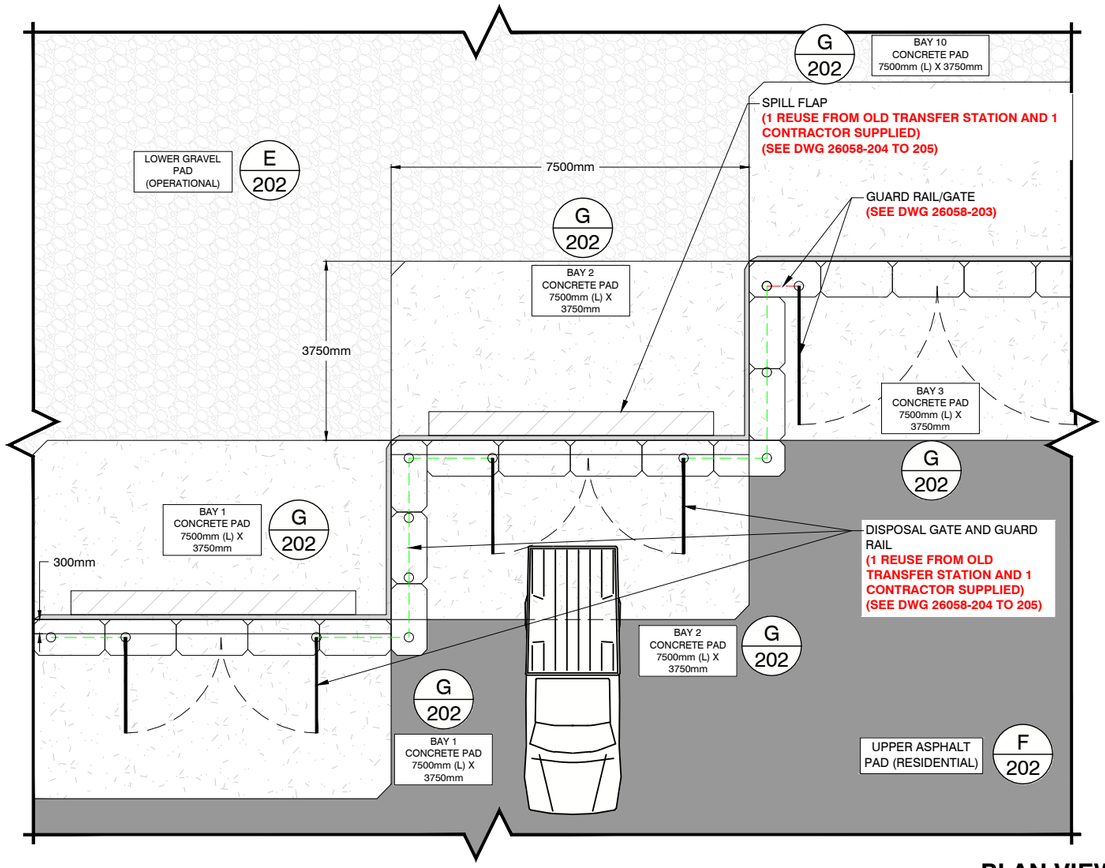
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| CHECKED BY: | SG/AP | HORIZONTAL SCALE: | AS SHOWN |
| APPROVED BY: | MC | VERTICAL SCALE: | AS SHOWN |

ADJUST SCALE 50% FOR 34"x22" SHEET

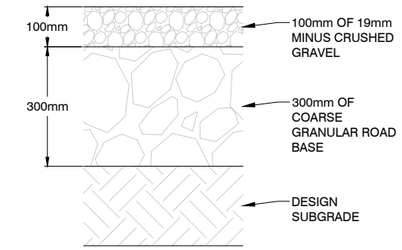
OOTISCHENIA TRANSFER STATION DESIGN AND CONSTRUCTION

**TRANSFER STATION BAY SECTION A TO D**

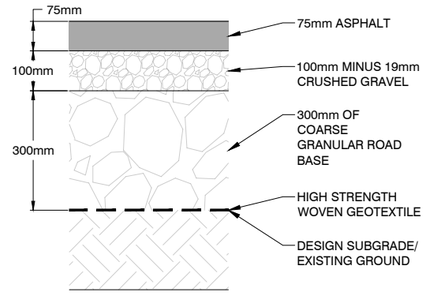
| DRAWING NO: | REV | SHEET |
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| 26058-201 | B | 201 |



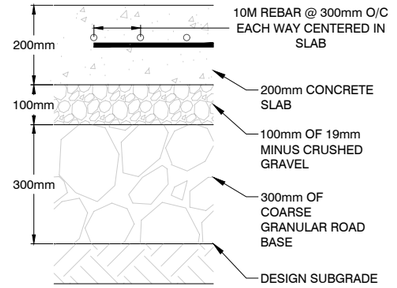

## PLAN VIEW
SCALE 1:125



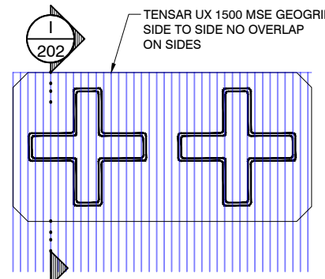

E 200 / E 201 / E 202 / E 301 GRAVEL PAD DETAIL
SCALE 1:15



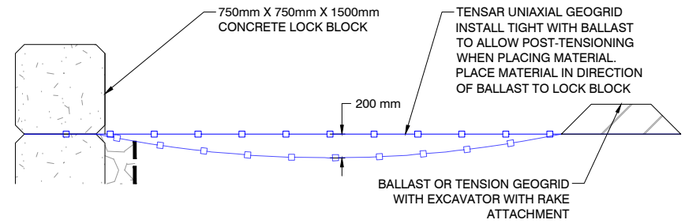

F 200 / F 201 / F 202 / F 301 ASPHALT PAD DETAIL
SCALE 1:15




G 201 / G 202 REINFORCED CONCRETE PAD DETAIL
SCALE 1:15



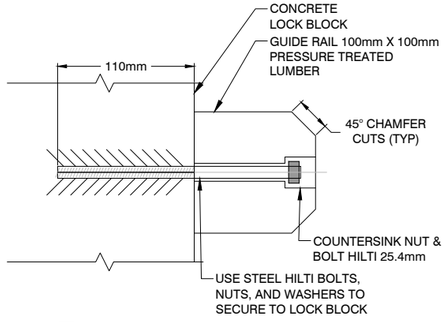

H 201 TENSAR GEOGRID DETAIL
SCALE 1:30



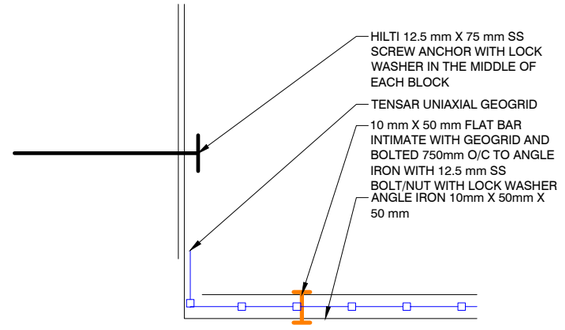

I 202 / I 201 TENSAR GEOGRID POST-TENSIONING DETAIL
SCALE 1:50

## SPECIFICATIONS

1. ALL WORKS SHALL BE IN ACCORDANCE WITH MMCD AND THE NATIONAL BUILDING CODE OF CANADA.
2. FOUNDATION GROUND SHALL BE CAREFULLY EXCAVATED SO AS TO NOT DISTURB THE EXISTING AREA IN EXCESS OF 100mm BELOW GRANULAR BASE UNDER SLABS OR LOCK-BLOCK WALLS. FOUNDATION SUBGRADE TO BE COMPACTED TO AT LEAST 95% MODIFIED PROCTOR DENSITY.
3. SUB BASE AND BASE COURSE TO BE COMPACTED TO 95% MODIFIED PROCTOR DENSITY.
4. BACKFILL SHALL BE IMPORTED GRANULAR MATERIALS. DO NOT USE VIBRATORY COMPACTION WITHIN 500mm OF WALL.
5. CONCRETE SLABS SHALL BE IN ACCORDANCE WITH C.S.A. CAN 3 A 23.1. CONCRETE SHALL BE AT LEAST 30MPa AT 28 DAYS. THE STRUCTURE SHALL NOT BE OPENED TO TRAFFIC UNTIL THE CONCRETE HAS ATTAINED A MINIMUM COMPRESSION STRENGTH OF 100% OF THE DESIGN STRENGTH.
6. PLACING - DO NOT PLACE CONCRETE DURING RAIN OR ON PONDED WATER OR FROZEN BASE. DO NOT PLACE CONCRETE WHEN AIR TEMPERATURE APPEARS LIKELY TO FALL BELOW 5deg. C WITHIN 24H, UNLESS SPECIFIED PRECAUTIONS ARE TAKEN AND APPROVED BY CONTRACT ADMINISTRATOR. DISCONTINUE PLACEMENT AT EXPANSION, CONSTRUCTION OR ISOLATION JOINTS ONLY. CONCRETE SHALL BE THOROUGHLY AND UNIFORMLY COMPACTED BY MEANS OF INTERNAL MECHANICAL VIBRATION WITH INTERNAL VIBRATORS. FRESHLY PLACED CONCRETE SHALL BE PROTECTED FROM DRYING FOR A PERIOD OF AT LEAST 3 DAYS BY THE USE OF ABSORBENT MATS WHICH SHALL BE WETTED DOWN AS REQUIRED.
7. FINISHING - FINISH EXPOSED EDGES WITH 19MM CHAMFER OR 10mm EDGER. FINISH SURFACE OF CONCRETE WITH MAGNESIUM OR WOOD FLOAT AND BRUSH OR BROOM TO PROVIDE UNIFORM NON-SKID SURFACE. AFTER FINISHING, THE CONTRACTOR SHALL TEST THE SMOOTHNESS OF THE PAVEMENT SURFACE WITH A 3m METAL STRAIGHTEDGE. NOTICEABLE DEVIATIONS SHALL BE CORRECTED AT THIS TIME.
8. EXPANSION JOINTS - SAW EXPANSION JOINTS AT A MAXIMUM SPACING OF 4m. JOINTS BE SAWN SHALL AS SOON AS THE CONCRETE SURFACE HAS HARDENED SUFFICIENTLY TO RESIST RAVELLING AS THE CUT IS MADE; NO LATER THAN 12H AFTER CONCRETE PLACEMENT. EXTEND THROUGH FULL DEPTH OF CONCRETE. FILL WITH EXPANSION JOINT MATERIAL.
9. JOINT SEALANT - THE CONTRACTOR CAN USE PRE-MOULDED NEOPRENE SEALANT, IMPREGNATED EXPANDING FOAM INSERT OR EQUIVALENT APPROVED BY ENGINEER. ALTERNATIVELY THE CONTRACTOR CAN USE PERMANENT FLEXIBLE POLYURETHANE BASE ELASTOMERIC SEALANT. THE SEALANT SHALL EXTEND THE FULL WIDTH OF THE CONCRETE AND SHALL RETAIN ELASTICITY AND DURABILITY OVER A TEMPERATURE RANGE OF - 40deg. C TO +65deg. C. DO NOT APPLY SEALANT UNTIL CONCRETE HAS AGED FOR MIN 7 DAYS. FLEXIBLE JOINT SEALANT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS
10. TESTING
    A. COMPRESSIVE STRENGTH TESTING - THE TEST CYLINDERS SHALL BE CAST BY THE CONTRACTOR IN STANDARD CSA APPROVED MOULDS MADE OF REPRESENTATIVE CONCRETE AS IT IS BEING INTRODUCED INTO THE FORMS. THE CONTRACTOR SHALL ENSURE THAT THE SPECIMENS ARE NOT DISTURBED DURING THE CURING PERIOD. CONTRACTOR TO PREPARE 4 SAMPLES FOR EVERY 100cu.m. OF CONCRETE AND/OR FOR EACH DAY THE CONCRETE IS CAST-IN-PLACE. THE CONTRACTOR SHALL ALLOW THE ENGINEER TO INSPECT THE SAMPLES AND SHALL DELIVER THE TEST CYLINDERS TO AN INDEPENDENT CSA CERTIFIED TESTING LABORATORY. COMPRESSIVE STRENGTH TESTS TO BE CARRIED ON MINIMUM TWO SPECIMENS AT 7 AND 28 DAYS RESPECTIVELY. HANDLING AND TRANSPORTING OF THE CYLINDERS SHALL BE IN ACCORDANCE WITH CSA 23.2-3C.
    B. COMPACTION TESTING - STANDARD TEST METHOD FOR RAPID DETERMINATION OF PERCENT COMPACTION, ASTM D5080, AT LEAST 1 TEST PER 300 $m^3$ OF COMPACTED FILL
12. STEEL REINFORCING - ALL REINFORCING STEEL SHALL BE SECURED IN SUCH A MANNER SO THAT IT DOES NOT MOVE DURING CONCRETE PLACEMENT OPERATIONS. SPACERS SHALL BE INSTALLED AT NO MORE THAN 1m CENTERS. ALL STEEL REINFORCEMENT WILL BE INSPECTED BY ENGINEER PRIOR TO CONCRETE PLACEMENT.
13. LOCK-BLOCKS SHALL BE 750x750x1500mm OR 750x750x750mm CONCRETE BLOCKS CAST FROM THE SAME FORM. BLOCKS SHALL HAVE A UNIFORM APPEARANCE AND ALL BLOCKS SHALL BE CAST IN A SINGLE POUR WITH NO COLD JOINTS IN THEM. BLOCKS SHALL BE LAID ON A PROPERLY PREPARED BASE, SCREENED LEVEL, SO AS TO ENSURE UNIFORM EVEN BEARING AND STABLE CONSTRUCTION.
14. MINIMAL BURIAL DEPTH OF BOTTOM LOCK BLOCK TO BE 500mm




J 201 GUIDE RAIL DETAIL
SCALE 1:5




K 201 GEOGRID LOCK BLOCK ANCHOR DETAIL
SCALE 1:1


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| A | 2026/06/11 | ISSUED FOR 50% REVIEW | AT | SG | -- |


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ADJUST SCALE 50% FOR 34"x22" SHEET

OOTISCHENIA TRANSFER STATION DESIGN AND CONSTRUCTION

**LOCK BLOCK WALL PLAN VIEW AND SPECIFICATION**

| DRAWING NO: | REV | SHEET |
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| 26058-202 | B | 202 |


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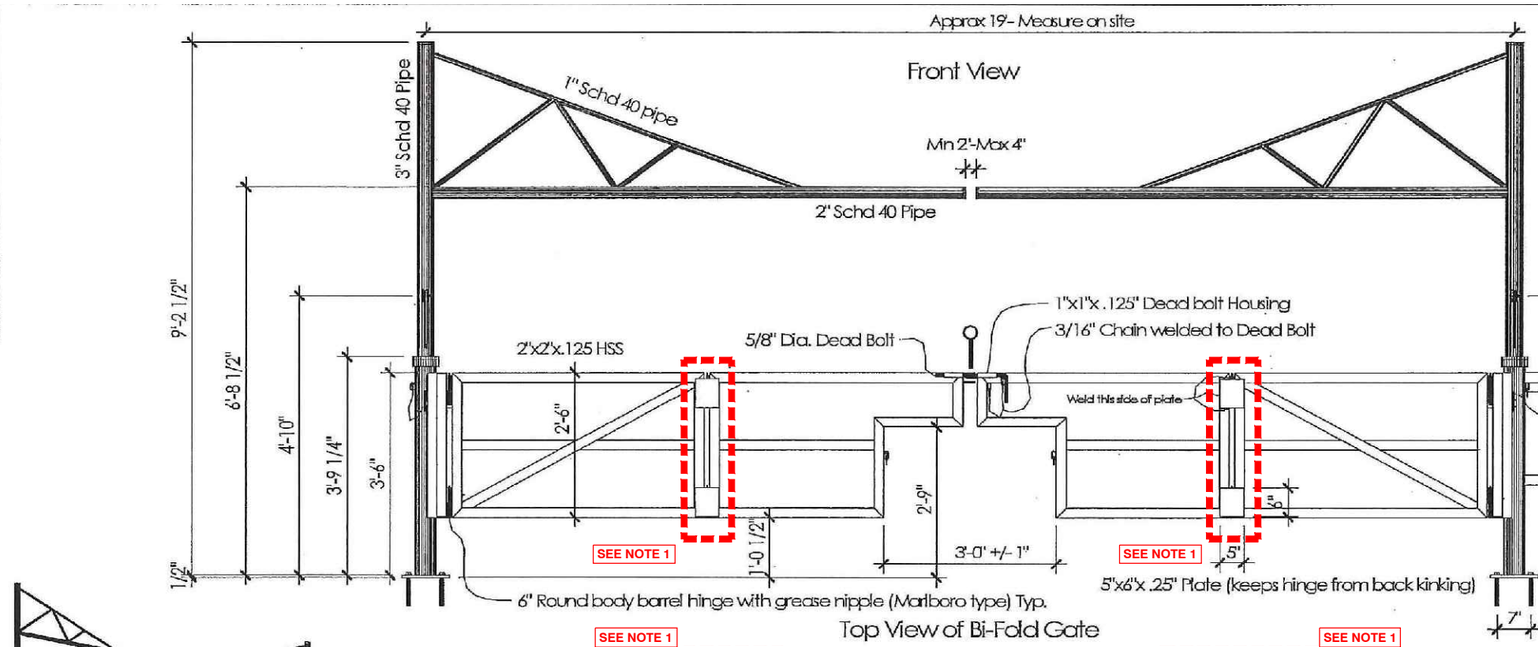
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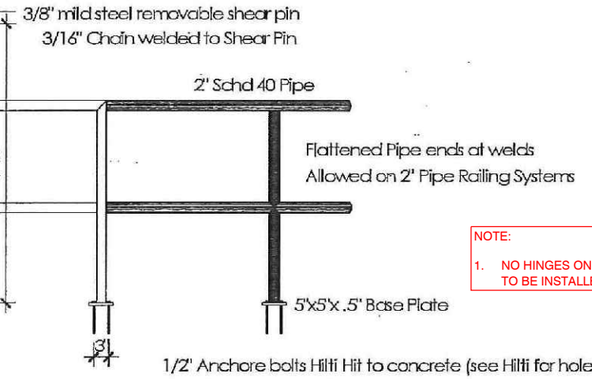
TRANSFER STATION (BAY 1-10) RAILING AND SPILL FLAP DESIGN AND DETAIL OWNED BY RDCK

# NOTE: All welding must conform to CSA STD W47.1

## All Site Welding Requires Div. 2 Certification

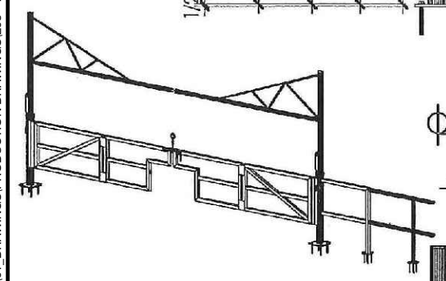
All pipe and tube ends reqr. welded end caps
All Parts Full Weld (seal welded)

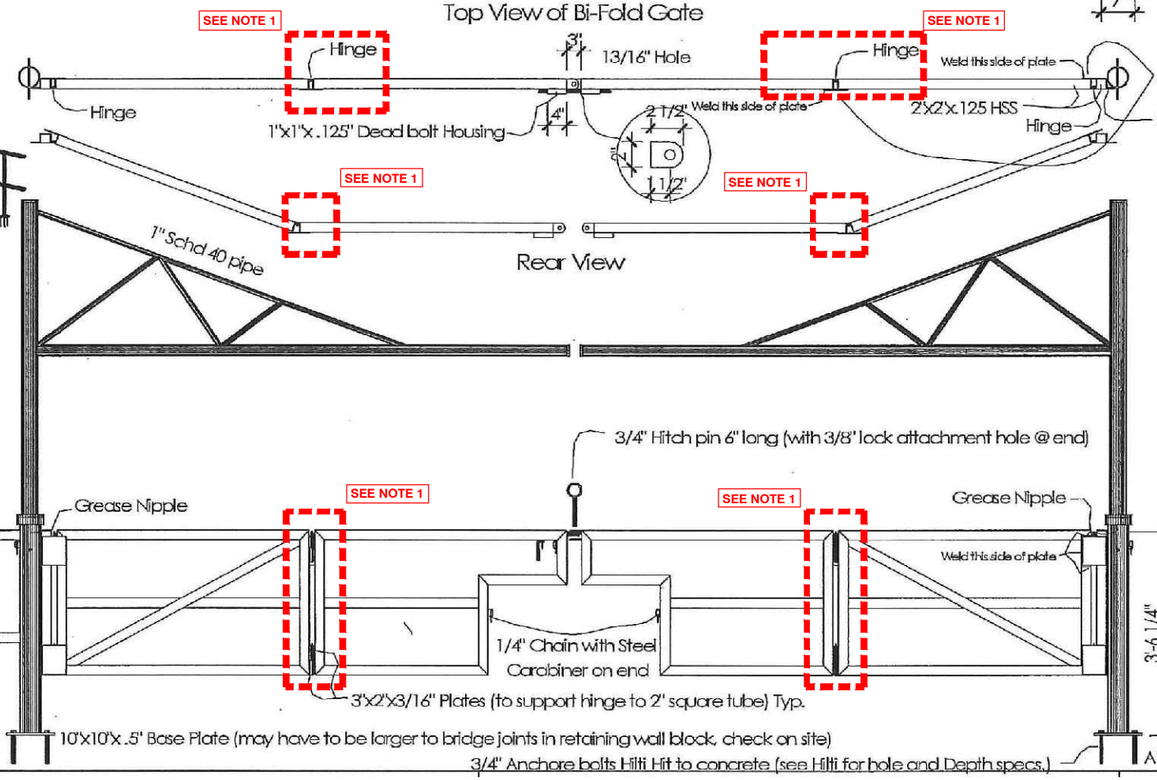


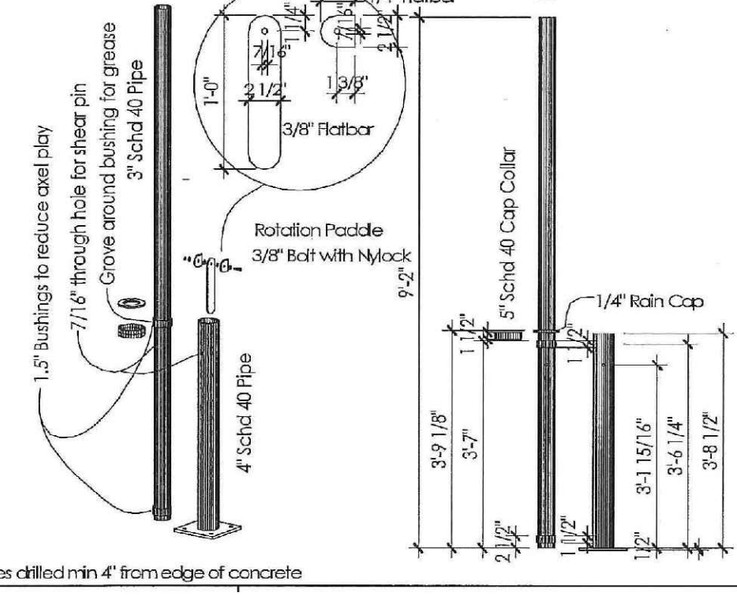

**NOTE:**

1. NO HINGES ON THE MID-SPAN OF GATES TO BE INSTALLED ON BAY 3 TO 10.






1/2" Anchore bolts Hilti Hit to concrete (see Hilti for hole and Depth specs.)
All holes drilled min 4" from edge of concrete




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ADJUST SCALE 50% FOR 34"x22" SHEET

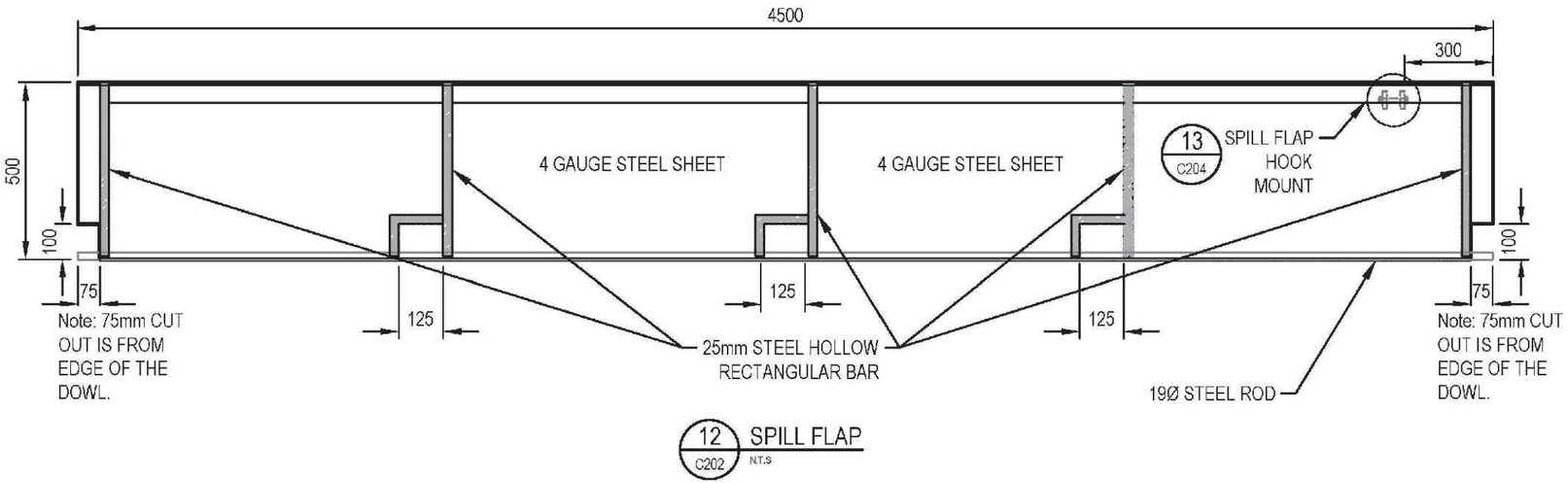
OOTISCHENIA TRANSFER STATION DESIGN AND CONSTRUCTION

**TRANSFER STATION (BAY 3 TO 10) RAILING & BI-FOLD GATE DETAILS**

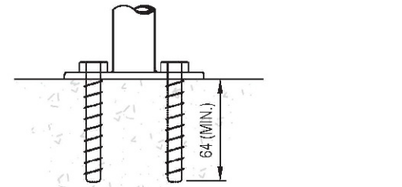
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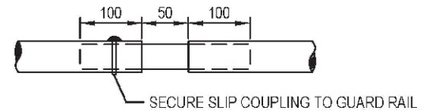
TRANSFER STATION (BAY 11) RAILING AND SPILL FLAP DESIGN AND DETAIL OWNED BY RDCK AND TETRA TECK

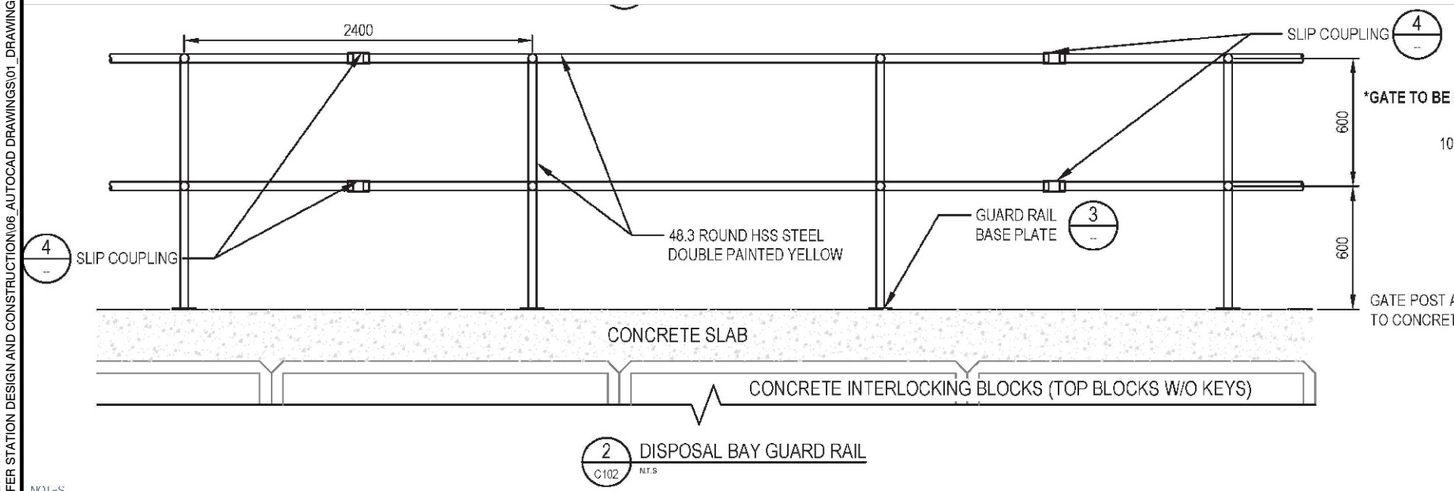



12 C202 SPILL FLAP N.T.S




3 -- GUARD RAIL BASE PLATE N.T.S

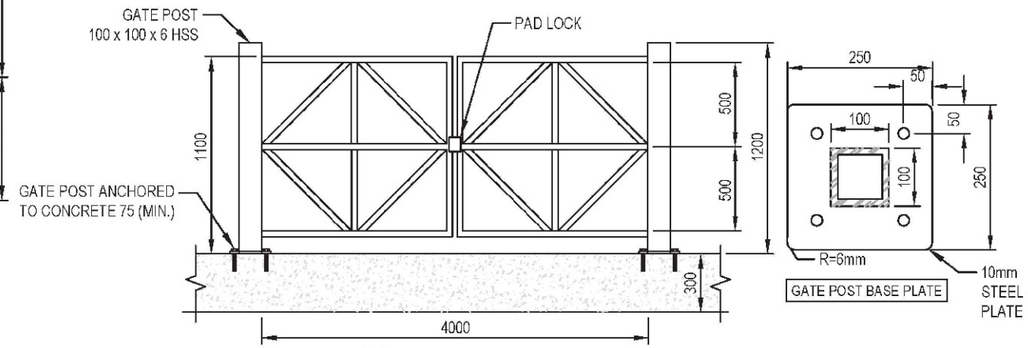



2 C102 DISPOSAL BAY GUARD RAIL N.T.S

4 -- SLIP COUPLING N.T.S

*GATE TO BE SUPPLIED BY CONTRACTOR




5 C102 DISPOSAL BAY GATE N.T.S

NOTES
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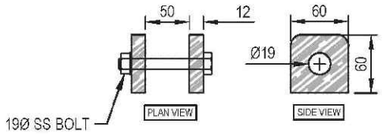
OOTISCHENIA TRANSFER STATION DESIGN AND CONSTRUCTION

# TRANSFER STATION (BAY 1 & 2) RAILING, GATE & SPILL FLAP DETAILS

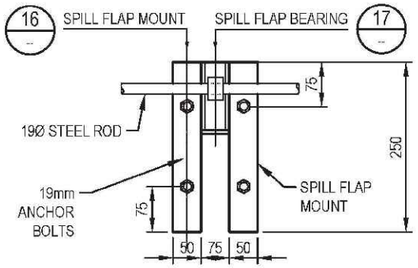
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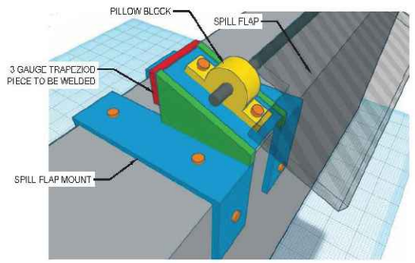
TRANSFER STATION (BAY 11) RAILING AND SPILL FLAP DESIGN AND DETAIL OWNED BY RDCK AND TETRA TECK



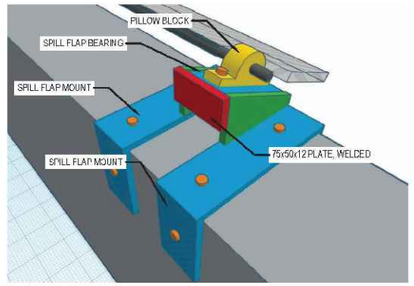

13 C203 SPILL FLAP HOOK MOUNT N.T.S



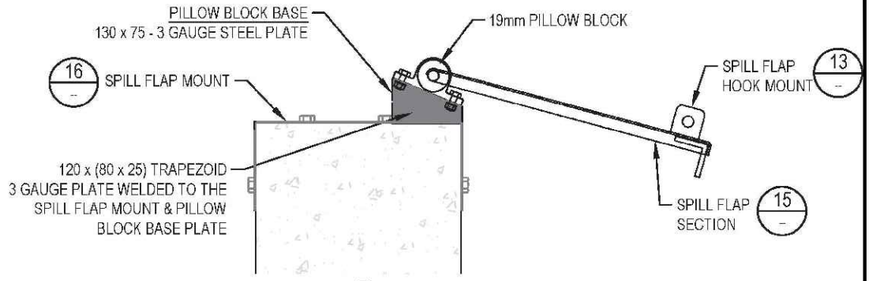

14 C202 SPILL FLAP HINGE SYSTEM N.T.S



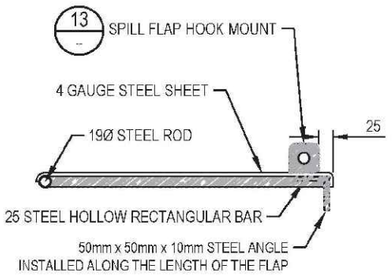

14A SPILL FLAP HINGE SYSTEM N.T.S



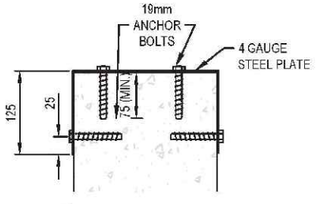

14B SPILL FLAP HINGE SYSTEM N.T.S



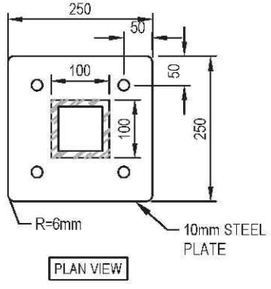

17 SPILL FLAP BEARING N.T.S

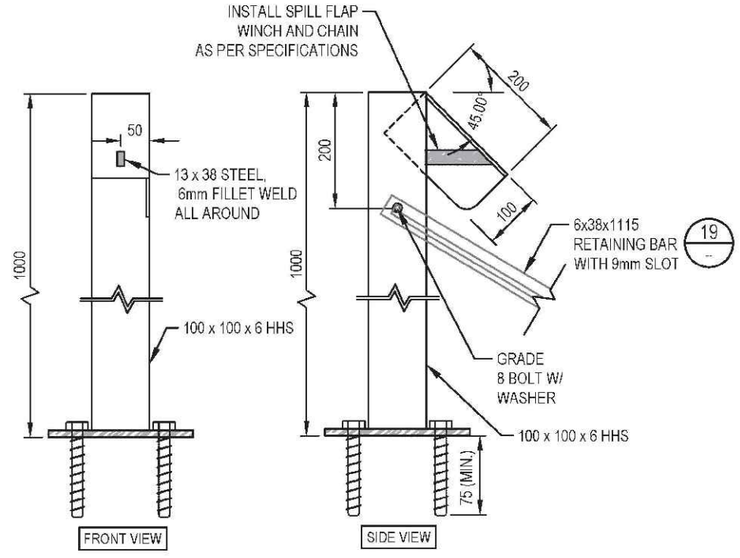



15 SPILL FLAP SECTION N.T.S

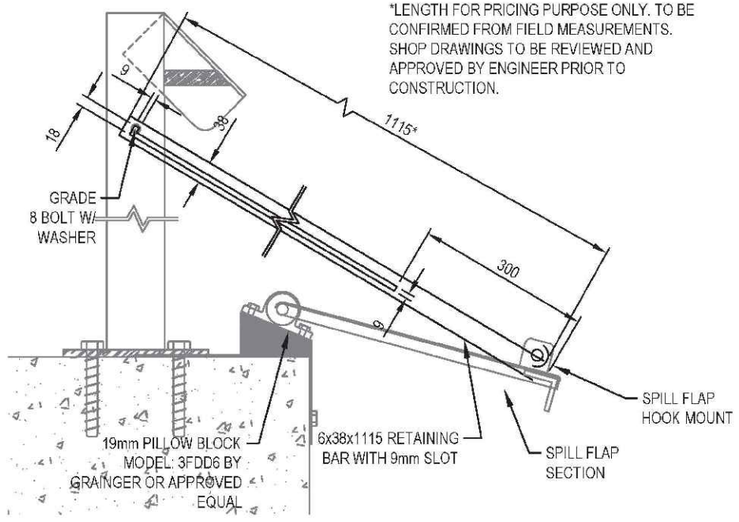



16 SPILL FLAP MOUNT N.T.S




18 C202 LEVER CHAIN POST N.T.S




19 LEVER CHAIN POST RETAINING BAR N.T.S

NOTES
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ADJUST SCALE 50% FOR 34"x22" SHEET

OOTISCHENIA TRANSFER STATION DESIGN AND CONSTRUCTION

**TRANSFER STATION (BAY 1 & 2) SPILL FLAP DETAILS**

| DRAWING NO: | REV | SHEET |
|---|---|---|
| 26058-205 | B | 205 |

E 453,900 E 454,000 E 454,100 E 454,200 E 454,300

N 5,456,900 N 5,456,800

SURFACE WATER INFILTRATION AREA

2@450mmØ HDPE DOUBLE-WALL CORRUGATED CULVERT MIN. @2% AND 1200mm O.C (SEE NOTE 2)
INLET INV: 477.94m
OUTLET INV: 477.59m
Q 301

300mmØ HDPE DOUBLE-WALL CORRUGATED CULVERT MIN. @2% (SEE NOTE 2)
INLET INV: 480.41m
OUTLET INV: 479.63m
Q 301

350mm SURFACE WATER DITCH
M 301

LOWER PAD ATTENDANT SHACK #2

1.73m X 1.55m JOBJON

100mmØ PERF. SCH80 PVC Z-WALL DRAIN PIPE

DRAIN PIPE CLEANOUT (TYP.)
O 301

600mm SURFACE WATER DITCH
L 301

ECO-DEPOT AND RECYCLING AREA

SURFACE WATER INFILTRATION AREA

300mmØ HDPE DOUBLE-WALL CORRUGATED CULVERT MIN.@2% (SEE NOTE 2)
INLET INV: 474.51m
OUTLET INV: 474.08m
Q 301

350mm SURFACE WATER DITCH
M 301

UPPER PAD ATTENDANT SHACK #1

CLEAN WATER STAND PIPE (TYP.)
P 301

600mm SURFACE WATER DITCH
L 301

EX WELL 484.72m

WATER FORCEMAIN (PIPE DIMENSION TO MATCH EXISTING CONTRACTOR TO CONFIRM IN FIELD)
N 301

350mm SURFACE WATER DITCH
M 301

WATER FORCEMAIN CONNECTION TO EXISTING ATTENDANT OFFICE

LEGEND:

- (1m) EG. MIN. CONT. - 2026 EG + DES SUBGRADE
- (5m) EG. MAJ. CONT. - 2026 EG + DES SUBGRADE
- (1m) DES. MIN. CONT. - TRANSFER STATION FINAL GRADE
- (5m) DES. MAJ. CONT. - TRANSFER STATION FINAL GRADE
- PROPERTY LINE
- EARTHWORK BOUNDARY
- EX. ROAD
- PROPOSED ROAD

**NOTES:**

1. EXISTING GROUND CONTOURS ARE A COMBINATION OF TOPOGRAPHIC SURVEYS
   - 2025 APR 30 AERIAL SURVEY FROM RDCK
   - 2026 MAR 26 AERIAL SURVEY FROM RDCK
2. ALL CULVERT INLET AND OUTLET SHOULD BE ARMORED WITH CLASS 50 KG RIP RAP WRAP AROUND

50 0 50m
SCALE = 1:1250

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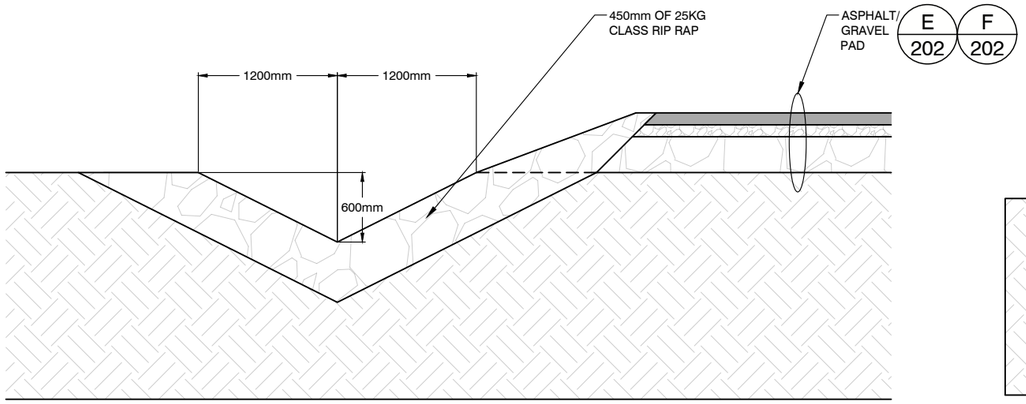
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| APPROVED BY: | MC | VERTICAL SCALE: | 1:1250 |

ADJUST SCALE 50% FOR 34"x22" SHEET

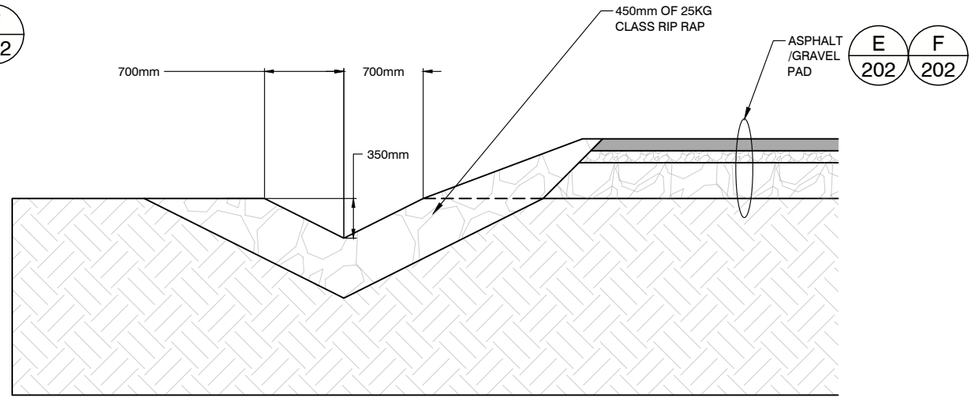
OOTISCHENIA TRANSFER STATION DESIGN AND CONSTRUCTION

# SURFACE WATER AND WATER MAIN MANAGEMENT PLAN

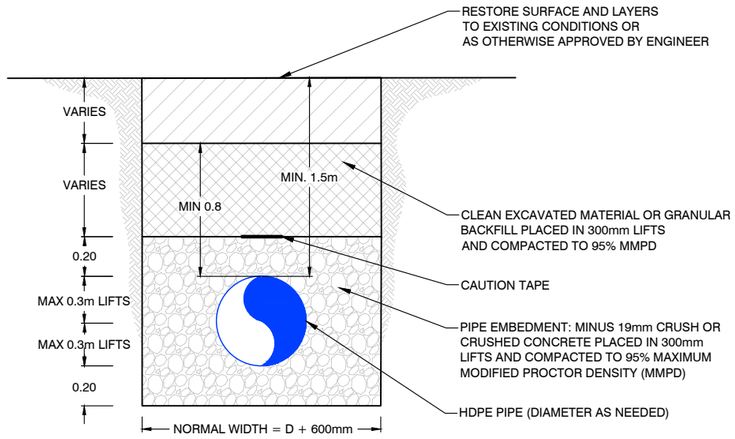
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| 26058-300 | B | 300 |



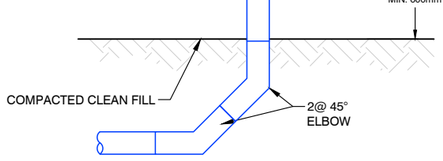

L 300 600mm SURFACE WATER DITCH DETAIL
SCALE 1:50



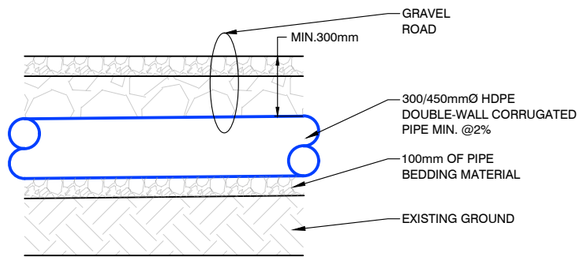

M 300 350mm SURFACE WATER DITCH DETAIL
SCALE 1:50



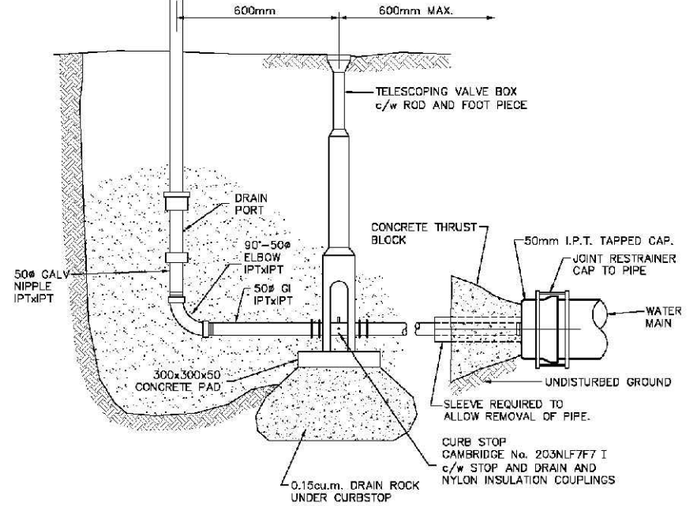

N 300 75mmØ WATER FORCEMAIN TRENCHING DETAIL
SCALE NTS




O 300 CLEANOUT DETAIL
SCALE 1:40_1




Q 300 HDPE DOUBLE-WALL CORRUGATED CULVERT CROSSING DETAIL
SCALE 1:30




P 300 CLEAN WATER STANDPIPE CONNECTION DETAIL
SCALE NTS

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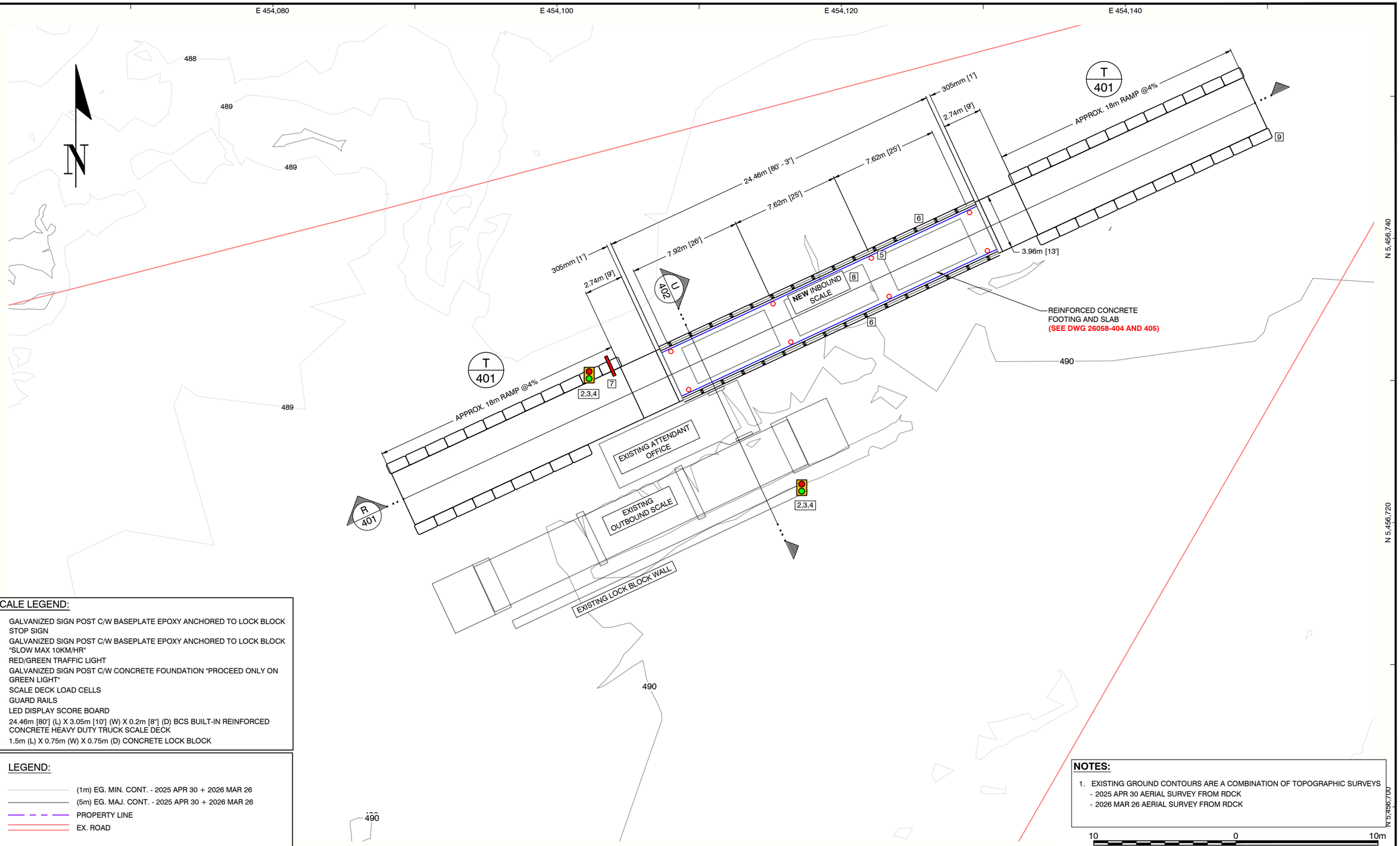
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OOTISCHENIA TRANSFER STATION DESIGN AND CONSTRUCTION

**SURFACE WATER AND WATER MAIN DETAILS**

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| 26058-301 | B | 301 |

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## SCALE LEGEND:

1. GALVANIZED SIGN POST C/W BASEPLATE EPOXY ANCHORED TO LOCK BLOCK STOP SIGN
2. GALVANIZED SIGN POST C/W BASEPLATE EPOXY ANCHORED TO LOCK BLOCK "SLOW MAX 10KM/HR"
3. RED/GREEN TRAFFIC LIGHT
4. GALVANIZED SIGN POST C/W CONCRETE FOUNDATION "PROCEED ONLY ON GREEN LIGHT"
5. SCALE DECK LOAD CELLS
6. GUARD RAILS
7. LED DISPLAY SCORE BOARD
8. 24.46m [80'] (L) X 3.05m [10'] (W) X 0.2m [8"] (D) BCS BUILT-IN REINFORCED CONCRETE HEAVY DUTY TRUCK SCALE DECK
9. 1.5m (L) X 0.75m (W) X 0.75m (D) CONCRETE LOCK BLOCK

## LEGEND:

- (1m) EG. MIN. CONT. - 2025 APR 30 + 2026 MAR 26
- (5m) EG. MAJ. CONT. - 2025 APR 30 + 2026 MAR 26
- PROPERTY LINE
- EX. ROAD

## NOTES:

1. EXISTING GROUND CONTOURS ARE A COMBINATION OF TOPOGRAPHIC SURVEYS
   - 2025 APR 30 AERIAL SURVEY FROM RDCK
   - 2026 MAR 26 AERIAL SURVEY FROM RDCK

10 0 10m
SCALE = 1:250

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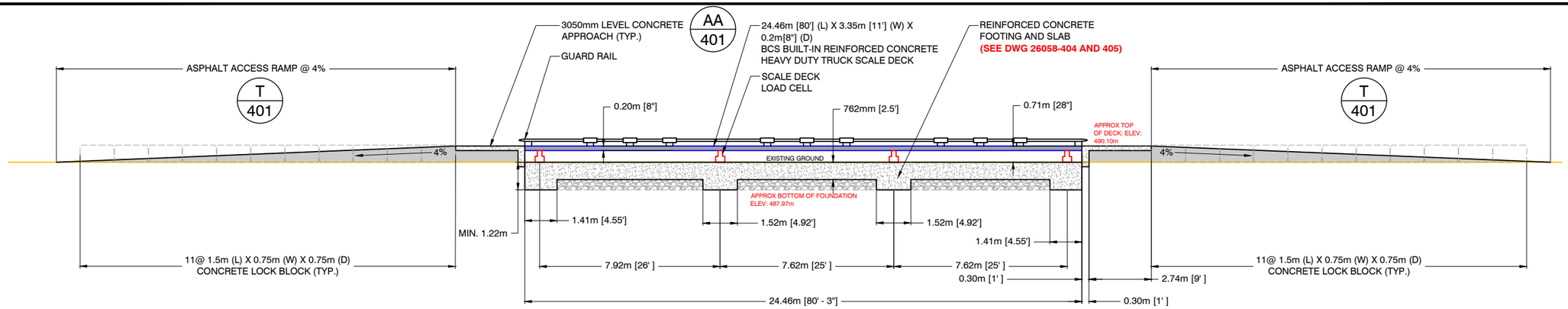
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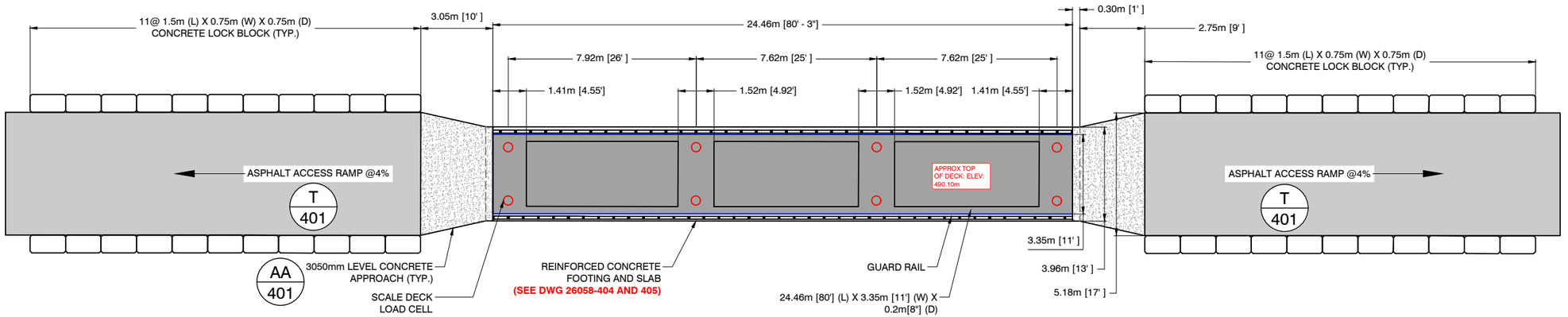
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# LANDFILL INBOUND SCALE PLAN

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|---|---|---|
| 26058-400 | B | 400 |

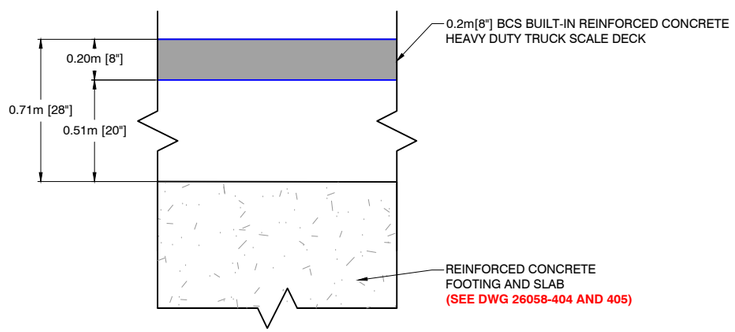



## SECTION

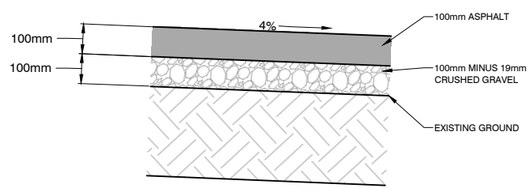



## PLAN VIEW

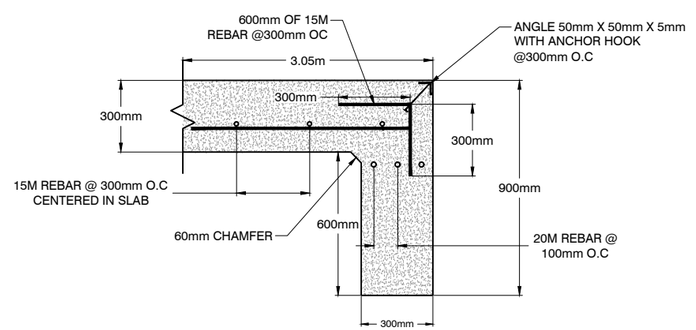
R 400 INBOUND SCALE SECTION AND PLAN VIEW
SCALE 1:200




S 401 S 402 REINFORCED CONCRETE SCALE DECK DETAIL
SCALE 1:30




T 400 T 401 ASPHALT ACCESS RAMP
SCALE 1:20




AA 401 LEVEL CONCRETE APPROACH DETAIL
SCALE 1:25


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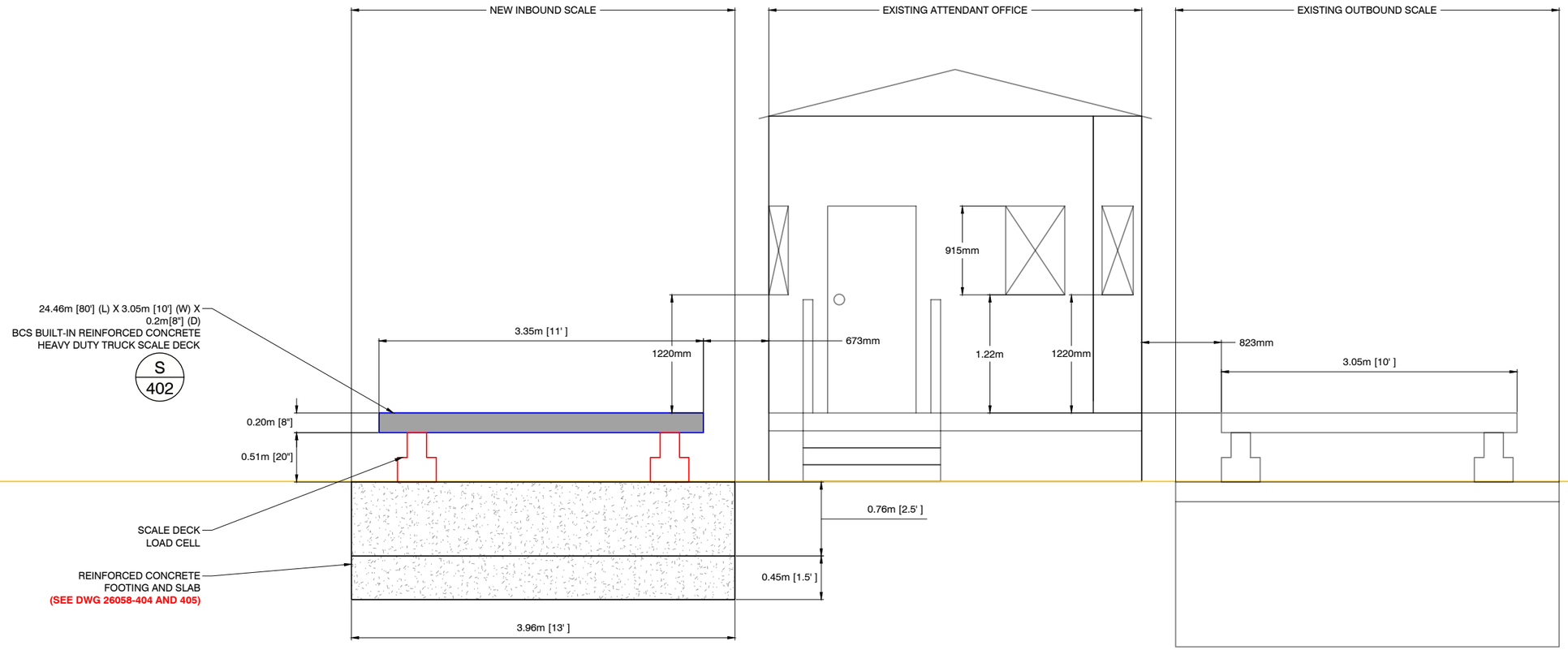
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OOTISCHENIA TRANSFER STATION DESIGN AND CONSTRUCTION

**LANDFILL INBOUND SCALE SECTION AND DETAILS**

| DRAWING NO: | REV | SHEET |
|---|---|---|
| 26058-401 | B | 401 |


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Z -- INBOUND/OUTBOUND SCALE AND ATTENDANT OFFICE SECTION

SCALE 1:50

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OOTISCHENIA TRANSFER STATION DESIGN AND CONSTRUCTION

**LANDFILL SCALES AND ATTENDANT OFFICE SECTION**

| DRAWING NO: | REV | SHEET |
|---|---|---|
| 26058-402 | B | 402 |

E 453,900 E 454,000 E 454,100 E 454,200

N 5,456,900 N 5,456,800

AB 403 PROPOSED ELECTRIC FENCE

NO-POST BARRIERS

EXISTING FENCE TO BE REMOVED

LOWER PAD ATTENDANT SHACK #2

1.73m X 1.55m JOBJON

UPPER PAD ATTENDANT SHACK #1

EX WELL 484.72m

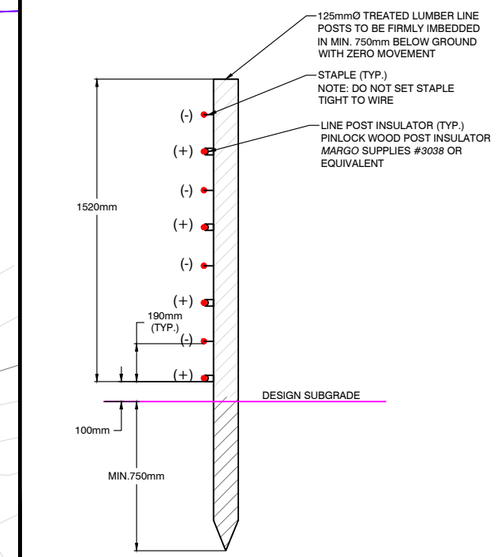
NO-POST BARRIERS (PROVISIONAL)

PROPOSED TRAFFIC LIGHT

EXISTING GATE TO BE RELOCATED (PROVISIONAL)

EXISTING GATE TO BE REMOVED

1 2 3 4 5 6 7 8 9 10




AB 403 ELECTRICAL FENCE DETAILS
SCALE 1:30

LEGEND:

- (1m) EG. MIN. CONT. - 2025 APR 30 + 2026 MAR 26
- (5m) EG. MAJ. CONT. - 2025 APR 30 + 2026 MAR 26
- (1m) DES. MIN. CONT. - TRANSFER STATION SUBGRADE
- (5m) DES. MAJ. CONT. - TRANSFER STATION SUBGRADE
- PROPERTY LINE
- EX. FENCE
- EX. ROAD
- PROPOSED ROAD
- COMMERCIAL VEHICLE DROP OFF TRAFFIC DIRECTION
- OPERATIONAL VEHICLE TRAFFIC DIRECTION
- RESIDENTIAL DROP OFF TRAFFIC DIRECTION
- PRP. FENCE

**NOTES:**

1. EXISTING GROUND CONTOURS ARE A COMBINATION OF TOPOGRAPHIC SURVEYS
   - 2025 APR 30 AERIAL SURVEY FROM RDCK
   - 2026 MAR 26 AERIAL SURVEY FROM RDCK
2. TRANSFER STATION BAY 1 TO 9 ARE OPERATED BY RDCK SUPPLIED 40 CUBIC YARD BIN.
3. TRANSFER STATION BAY 10 IS OPERATE BY RDCK SUPPLIED ROLL OFF BIN FROM EXISTING ORGANIC STATION

50 0 50m
SCALE = 1:1250


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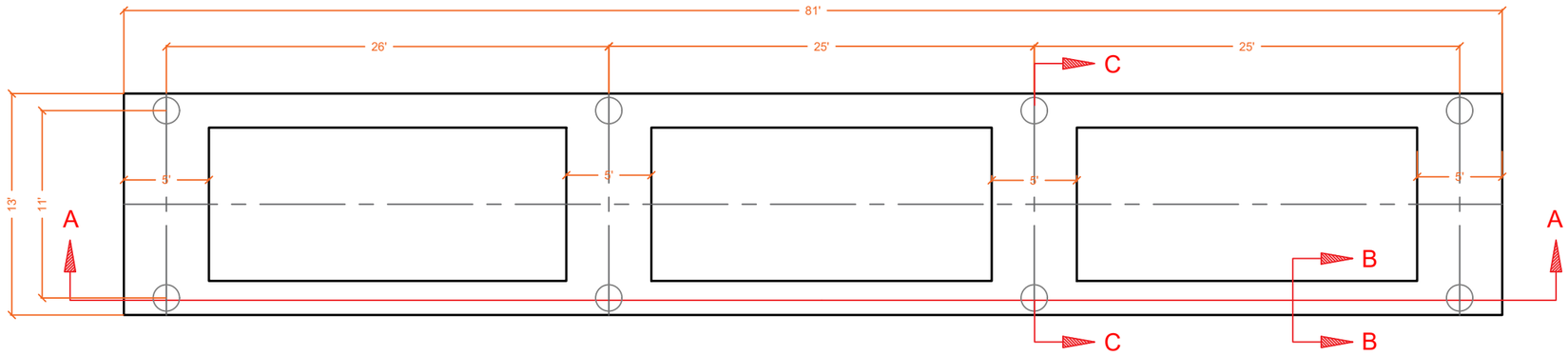
ADJUST SCALE 50% FOR 34"x22" SHEET

OOTISCHENIA TRANSFER STATION DESIGN AND CONSTRUCTION

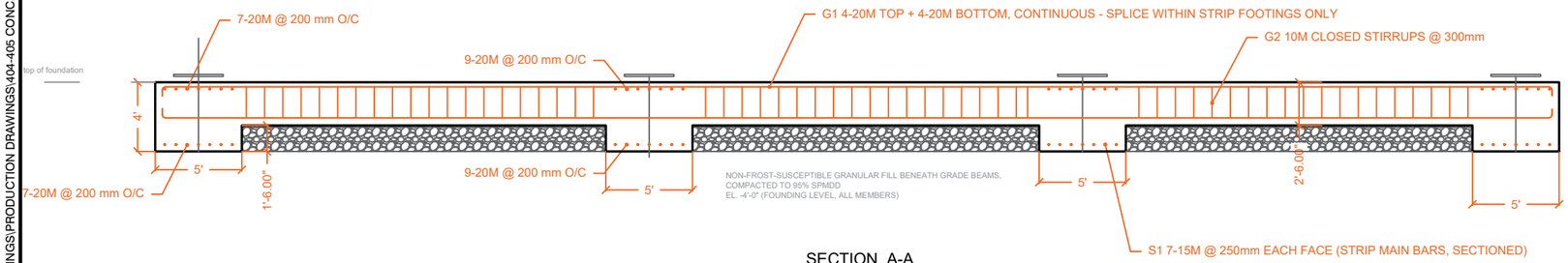
**TRAFFIC MANAGEMENT AND SIGNAGE PLAN**

| DRAWING NO: | REV | SHEET |
|---|---|---|
| 26058-403 | B | 403 |


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VIEW OF PLAN




SECTION A-A

## BAR SCHEDULE

| MARK | MEMBER | LOCATION | BAR | No. | LENGTH | MASS |
|---|---|---|---|---|---|---|
| **S1** | STRIP FOOTINGS 1-4 | MAIN, SPANNING 13'-0", TOP AND BOTTOM FACE | 15M @ 250 | 7 EACH FACE | 3.81 m | 335 kg |
| **S2** | STRIP FOOTINGS 1-4 | DISTRIBUTION, ALONG STRIP WIDTH, BOTH FACES | 15M @ 400 | 11 EACH FACE | 1.37 m | 190 kg |
| **S3** | STRIP FOOTINGS 1-4 | SIDE FACE, EACH EXPOSED VERTICAL FACE | 15M | 2 EACH FACE | 3.81 m | 96 kg |
| **G1** | GRADE BEAMS (2) | LONGITUDINAL, TOP AND BOTTOM, CONTINUOUS | 20M | 4 + 4 | 24.69 m | 930 kg |
| **G2** | GRADE BEAMS (2) | CLOSED STIRRUPS, THROUGH OPEN BAYS | 10M @ 300 | 122 | 2.24 m | 215 kg |
| **A1** | ANCHOR ZONES (8) | CLOSED TIES, CENTRED ON ROD PAIR | 10M @ 150 | 3 EACH | 2.00 m | 38 kg |
| **TOTAL REINFORCEMENT** | | | | | | **APPROX. 1800 kg** |

## DEVELOPMENT AND LAP LENGTHS (mm)

| BAR | Ld BOTTOM | Ld TOP | LAP BOTTOM | LAP TOP | STD HOOK Ldh |
|---|---|---|---|---|---|
| **10M** | 300 | 375 | 400 | 500 | 300 |
| **15M** | 425 | 550 | 550 | 750 | 300 |
| **20M** | 525 | 675 | 700 | 900 | 375 |

TO CSA A23.3 CL.12.2.2 WITH f'c = 30 MPa, fy = 400 MPa, UNCOATED BARS, NORMAL DENSITY CONCRETE. CLASS B LAPS. 'TOP' APPLIES TO ANY HORIZONTAL BAR WITH MORE THAN 300 mm OF FRESH CONCRETE CAST BELOW IT.

## DESIGN SUMMARY

| ITEM | VALUE |
|---|---|
| **SERVICE REACTIONS** | 4 x 60 kip + 4 x 75 kip = 540 kip |
| **LOAD FACTOR** | 1.5 UNIFORM |
| **NET ALLOWABLE BEARING** | 100 kPa |
| **MAX. NET BEARING PRESSURE** | 79 kPa (k = 15 MN/m3) |
| **GRADE BEAM SHARE OF TOTAL LOAD** | 43 % |

## GENERAL NOTES

01 ALL REINFORCED CONCRETE TO CSA A23.3:19 AND CSA A23.1:19.

02 CONCRETE f'c = 30 MPa AT 28 DAYS, 5-7% ENTRAINED AIR, 20 mm MAXIMUM AGGREGATE. REINFORCEMENT GRADE 400W TO CSA G30.18.

03 CLEAR COVER 75 mm AT ALL FACES.

04 UNDERSIDE OF ALL BEARING MEMBERS AT 4'-0" BELOW FINISHED GRADE. FOUNDING LEVEL TO BE INSPECTED AND APPROVED BY THE GEOTECHNICAL ENGINEER BEFORE PLACING CONCRETE. BEARING ON UNDISTURBED COMPETENT NATIVE SOIL, NET ALLOWABLE BEARING PRESSURE 100 kPa.

05 BENEATH GRADE BEAMS, FROM UNDERSIDE OF BEAM TO EL. -4'-0", PLACE CLEAN NON-FROST-SUSCEPTIBLE GRANULAR FILL COMPACTED TO 95% SPMDD. VOLUME APPROX. 10.4 m3.

06 STRIP FOOTINGS AND GRADE BEAMS TO BE PLACED MONOLITHICALLY. SPLICE G1 BARS WITHIN STRIP FOOTINGS ONLY AND STAGGER SO THAT NOT MORE THAN 50% ARE SPLICED AT ANY ONE SECTION.

07 LEAST DIMENSION OF THE STRIP FOOTINGS IS 1.22 m, PLACING THEM IN THE MASS CONCRETE RANGE. PROVIDE A HYDRATION HEAT CONTROL PLAN TO CSA A23.1 - MAXIMUM CORE TO SURFACE TEMPERATURE DIFFERENTIAL 20 C.

08 ANCHOR RODS: 2 PER SUPPORT POINT, 3/4" DIA. ASTM F1554 GR.36, 12" MINIMUM EMBEDMENT, 3" PROJECTION, 14" c/c, ORIENTED ALONG THE LENGTH OF THE SCALE. USE SUPPLIER BASE PLATES AS DRILLING TEMPLATES AND SET RODS BEFORE PLACING CONCRETE. WHERE THE SUPPLIER ISSUES ITS OWN ANCHORAGE REQUIREMENTS, THOSE GOVERN.

09 TOP OF CONCRETE AT ALL BASE PLATE LOCATIONS TO BE LEVEL AND IN ONE PLANE WITHIN +/- 3 mm.

10 GRADE BEAMS ARE DESIGNED TO REMAIN UNCRACKED UNDER SERVICE LOAD - THE LOAD SHARING BETWEEN GRADE BEAMS AND STRIP FOOTINGS DEPENDS ON IT. DO NOT REDUCE THE GRADE BEAM SECTION OR THE G1 BARS.

11 SLOPE BACKFILL AND FINISHED GRADING AWAY FROM THE FOUNDATION SO THAT WATER DOES NOT POND IN THE OPEN BAYS.

12 THE 60 kip AND 75 kip SUPPORT REACTIONS ARE TAKEN AS SIMULTANEOUS SERVICE REACTIONS THAT INCLUDE THE CRITICAL CASE BRAKING AND TRANSVERSE EFFECTS.

13 DIMENSIONS IN FEET AND INCHES GOVERN. BAR SIZES, SPACINGS, COVERS AND LAP LENGTHS ARE METRIC.

14 THIS SKETCH CONVEYS ENGINEERING INTENT FOR DRAFTING ONLY. THE FINAL PACKAGE MUST BE REVIEWED AND SEALED BY AN ENGINEER AND FIRM AUTHORIZED TO PRACTISE IN BRITISH COLUMBIA.

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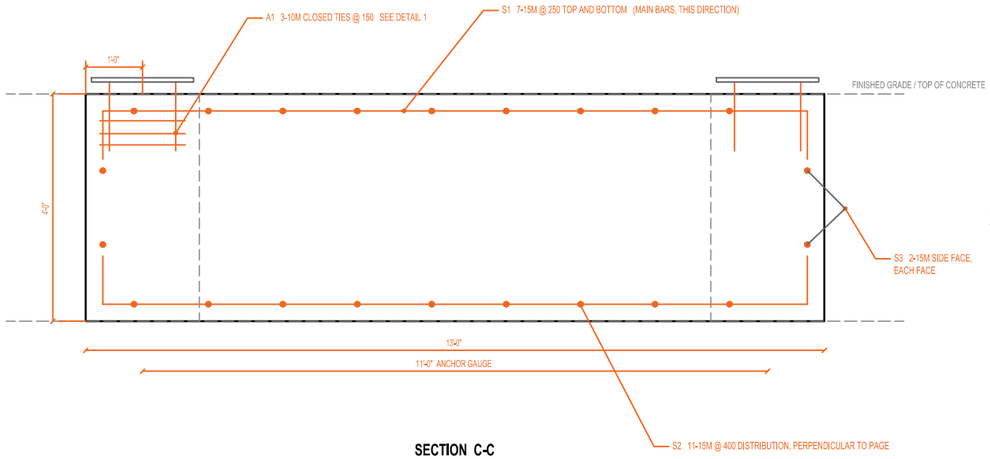
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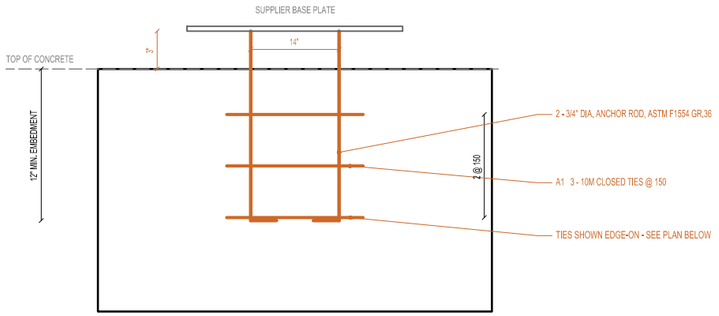
| | | | |
|---|---|---|---|
| DESIGN BY: -- | SHA PROJECT # PRJ26058 | OOTISCHENIA TRANSFER STATION DESIGN AND CONSTRUCTION | |
| DRAWN BY: -- | DATE CREATED: 2026/10/28 | **REINFORCED CONCRETE FOOTING & SLAB PLAN, SECTION & SPECIFICATION 1** | |
| CHECKED BY: -- | HORIZONTAL SCALE: NA | DRAWING NO: | REV / SHEET |
| APPROVED BY: -- | VERTICAL SCALE: NA | 26058-404 | B / 404 |

ADJUST SCALE 50% FOR 34"x22" SHEET

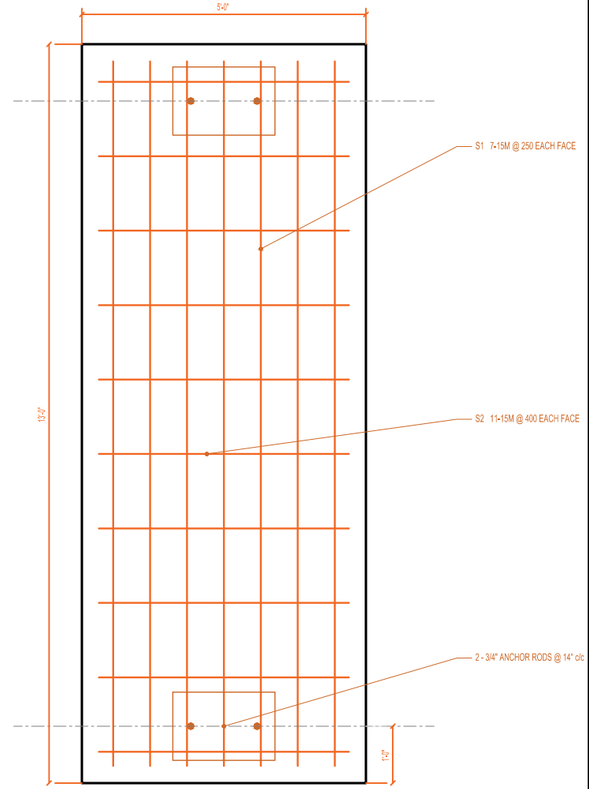



**SECTION C-C**

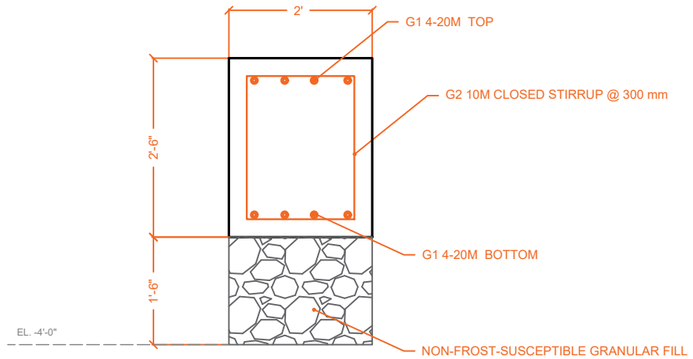
ALL FOUR STRIP FOOTINGS IDENTICAL



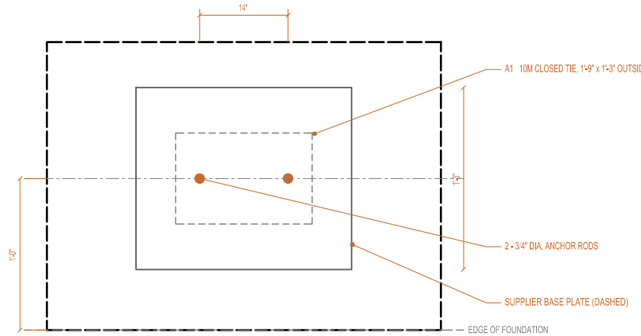

**DETAIL 1 ELEVATION** SCALE 2" = 1'-0" TYPICAL AT 8 SUPPORT POINTS




**TYPICAL STRIP FOOTING REINFORCEMENT** SCALE 3/4" = 1'-0"




**SECTION B-B**




**DETAIL 1 PLAN AT ANCHOR**

## SUPPORT REACTION SCHEDULE (SERVICE)

| POINT | ROW | LOCATION FROM WEST END | REACTION | STRIP FOOTING |
|---|---|---|---|---|
| 1 / 2 | 1 | 2'-6" | 60 kip / 267 kN | STRIP 1 |
| 3 / 4 | 2 | 28'-6" | 75 kip / 334 kN | STRIP 2 |
| 5 / 6 | 3 | 53'-6" | 75 kip / 334 kN | STRIP 3 |
| 7 / 8 | 4 | 78'-6" | 60 kip / 267 kN | STRIP 4 |
| **TOTAL (8 POINTS)** | | | | **540 kip / 2402 kN** |

REACTIONS AS PROVIDED BY THE SCALE SUPPLIER AND TAKEN AS SIMULTANEOUS SERVICE REACTIONS INCLUDING THE CRITICAL CASE BRAKING AND TRANSVERSE EFFECTS. ANCHOR RODS AT 11'-0" GAUGE, 2 PER POINT AT 14" c/c.


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OOTISCHENIA TRANSFER STATION DESIGN AND CONSTRUCTION

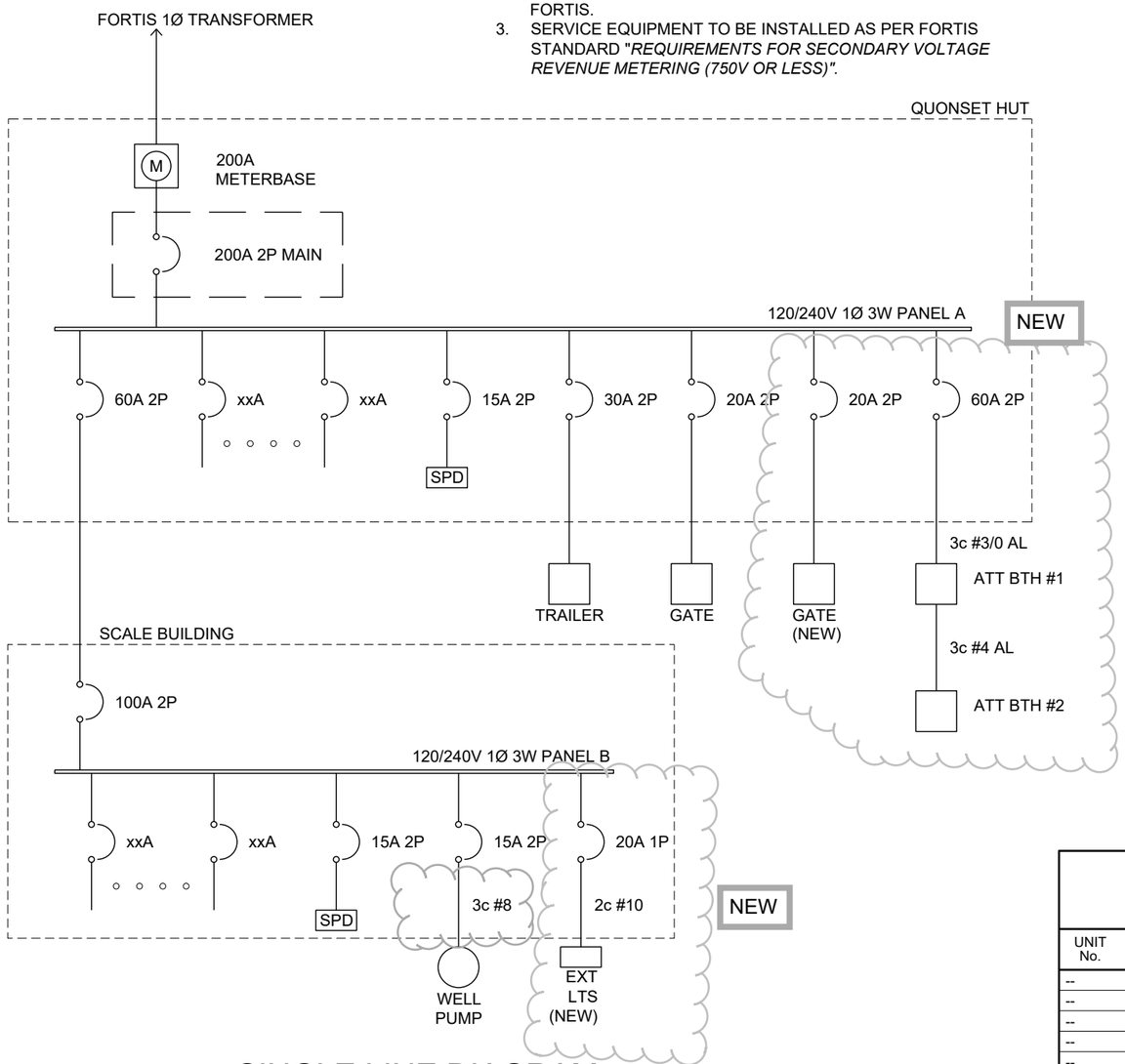
**REINFORCED CONCRETE FOOTING & SLAB PLAN, SECTION & SPECIFICATION 2**

| DRAWING NO: | REV | SHEET |
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NOTES:

1. ALL INSTALLATION AS PER CURRENT EDITION OF THE CEC.
2. CONTRACTOR TO COORDINATE INSTALLATION WITH FORTIS.
3. SERVICE EQUIPMENT TO BE INSTALLED AS PER FORTIS STANDARD "*REQUIREMENTS FOR SECONDARY VOLTAGE REVENUE METERING (750V OR LESS)*".




## SINGLE LINE DIAGRAM

NOT TO SCALE

## SYMBOL SCHEDULE

| SYMBOL | DESCRIPTION | NOTES |
|---|---|---|
| (A) | POLE/POST MOUNT LUMINAIRE OF TYPE 'A' REFER TO LUMINAIRE SCHEDULE FOR DETAILS | |
| GATE | EQUIPMENT TAG REFER TO EQUIPMENT SCHEDULE | |
| | MOTOR DISCONNECT SWITCH | |
| JB | JUNCTION BOX | |
| | 15/20 AMP, 125V DUPLEX GROUND FAULT RECEPTACLE (GFCI) | |

PC - PHOTOCELL
TC - TIMECLOCK
WP - WEATHERPROOF ENCLOSURE

## LUMINAIRE SCHEDULE

| TYPE | DESCRIPTION | LAMPS | MOUNTING | REMARKS |
|---|---|---|---|---|
| A | AREA LIGHT<br>BLUE TOOTH PROGRAMMABLE WITH DIMMING MOTION SENSING | LED<br>16000LM<br>3000K | POLE | LITHONIA LIGHTING RSX2LED-P2-30K-R4-MVOLT-NLTAIR2-DDBXD |
| B | AREA LIGHT<br>BLUE TOOTH PROGRAMMABLE WITH DIMMING MOTION SENSING | LED<br>10000LM<br>3000K | POLE | LITHONIA LIGHTING RSX2LED-P1-30K-R2-MVOLT-NLTAIR2-DDBXD |
| C | AREA LIGHT<br>BLUE TOOTH PROGRAMMABLE WITH DIMMING MOTION SENSING | LED<br>23000LM<br>3000K | POLE | LITHONIA LIGHTING RSX2LED-P4-30K-R4-MVOLT-NLTAIR2-DDBXD |
| D | AREA LIGHT<br>BLUE TOOTH PROGRAMMABLE WITH DIMMING MOTION SENSING | LED<br>16000LM<br>3000K | POLE | LITHONIA LIGHTING RSX2LED-P2-30K-R3-MVOLT-NLTAIR2-DDBXD |
| E | AREA LIGHT<br>--<br>-- | LED<br>20000LM<br>3000K | POLE | LITHONIA LIGHTING RSX2LED-P3-40K-R4-MVOLT-AASP-PER7-DDBXD |

ALL LUMINAIRES ARE TO HAVE 10kV SURGE PROTECTION - MINIMUM.

## EQUIPMENT SCHEDULE

| UNIT No. | UNIT DESCRIPTION | LOCATION | LOAD HP | LOAD KW | LOAD AMP | VOLT | PHASE | FEEDER | BREAKER | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|
| -- | ATTENDANT BOOTH #1 | -- | | | 60 | 120/240 | 1 | 3c #3/0 AL | 60A 2P | QUONSET HUT PANEL A |
| -- | ATTENDANT BOOTH #2 | -- | | | 40 | 120/240 | 1 | 3c #4 AL | 40A 2P | SUB-FEED FROM AB#1 |
| -- | JOB-JON | -- | | | 15 | 120 | 1 | 2c #12 | 15A 1P | TBC |
| -- | EXIT SCALE | -- | | | xx | 120 | 1 | -- | -- | TBD |
| -- | GATE | -- | | | 20 | 120/240 | 1 | 3c #10 | 20A 2P | TBC |
| -- | -- | -- | -- | | | -- | -- | -- | -- | -- |
| -- | -- | -- | -- | | | -- | -- | -- | -- | -- |

NOTES:

1. CONFIRM FINAL LOCATION AND POSITION OF ALL EQUIPMENT PRIOR TO ROUGH-IN.


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Project No: #2026-11
Permit No: 1003300


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| APPROVED BY: | LL | | |

OOTISCHENIA TRANSFER STATION DESIGN AND CONSTRUCTION

**ELECTRICAL SCHEDULES**

| DRAWING NO: | REV | SHEET |
|---|---|---|
| 26058-100 | B | E-00 |

NOTES:
1. ALL INSTALLATION AS PER CURRENT EDITION OF THE CANADIAN ELECTRICAL CODE.
2. EQUIPMENT AND BUILDING LOCATIONS ARE APPROXIMATE. CONDUIT ROUTING SHOWN IS FOR INTENT - FINAL ROUTING IS TO BE ADJUSTED TO SUIT SITE CONDITIONS AND IN COORDINATION WITH NEW EXCAVATIONS.
3. PROVIDE NEW AREA LIGHTING, AS INDICATED. COORDINATE WITH CIVIL LAYOUTS FOR FINAL LOCATION OF POLE BASE. POLE IS TO BE SIZED TO ACCOMMODATE ALL INDICATED LUMINAIRES AND EQUIPMENT.
4. PROVIDE NEW SECURITY CAMERA LOCATIONS.
5. PROVIDE 120V, 15A CIRCUIT TO NEW JOB-JON LOCATION. COORDINATE WITH EQUIPMENT MANUFACTURER FOR CIRCUIT REQUIREMENTS AND CONNECTION LOCATION.
6. PROVIDE IP PHONE & INTERCOM FOR ATTENDANT ASSISTANCE. COORDINATE WITH OWNER FOR PREFERRED EQUIPMENT AND MOUNTING HT.
7. EXISTING POLE AND LUMINAIRES LOCATION, TO REMAIN AS IS. EXISTING SECURITY CAMERA IS TO REMAIN AS IS.
8. EXISTING POLE, LUMINAIRES AND SECURITY CAMERA ARE TO BE RELOCATED TO NEW LOCATION INDICATED. RE-FEED CAMERA AND POLE WITH REVISED CONDUIT/CABLE ROUTING. MOUNTING METHOD IS TO REMAIN THE SAME AS EXISTING.
   8.1. THE IP PHONE IS TO BE RELOCATED TO THE NEW TRANSFER BIN LOCATIONS. PATCH POLE PENETRATIONS TO MINIMIZE FUTURE CORROSION.
9. TYPE A POLE LOCATIONS ARE TO BE MOUNTED TO INTERLOCK BLOCK SIMILAR TO EXISTING POLES AT SCALE HOUSE.
10. NEW GATE AND CONTROLLERS ARE TO BE DETERMINED. ASSUME 20A 240V CIRCUIT FOR CONTROLLER AND MOTOR. COORDINATE FINAL POWER REQUIREMENTS WITH MANUFACTURER. COORDINATE CONTROL WIRING REQUIREMENTS WITH MANUFACTURER FOR REMOTE GATE CONTROLS.
11. PROVIDE NEW FEEDER TO EXISTING WELL PUMP. CONFIRM FINAL ROUTING OF CABLING TO SUIT. CONDUIT AND WIRE OR DIRECT BURIED ARMOURED CABLE IS ACCEPTABLE. FINAL SIZE OF CONDUCTOR IS TO SUIT NO MORE THAN 3% VOLTAGE DROP.

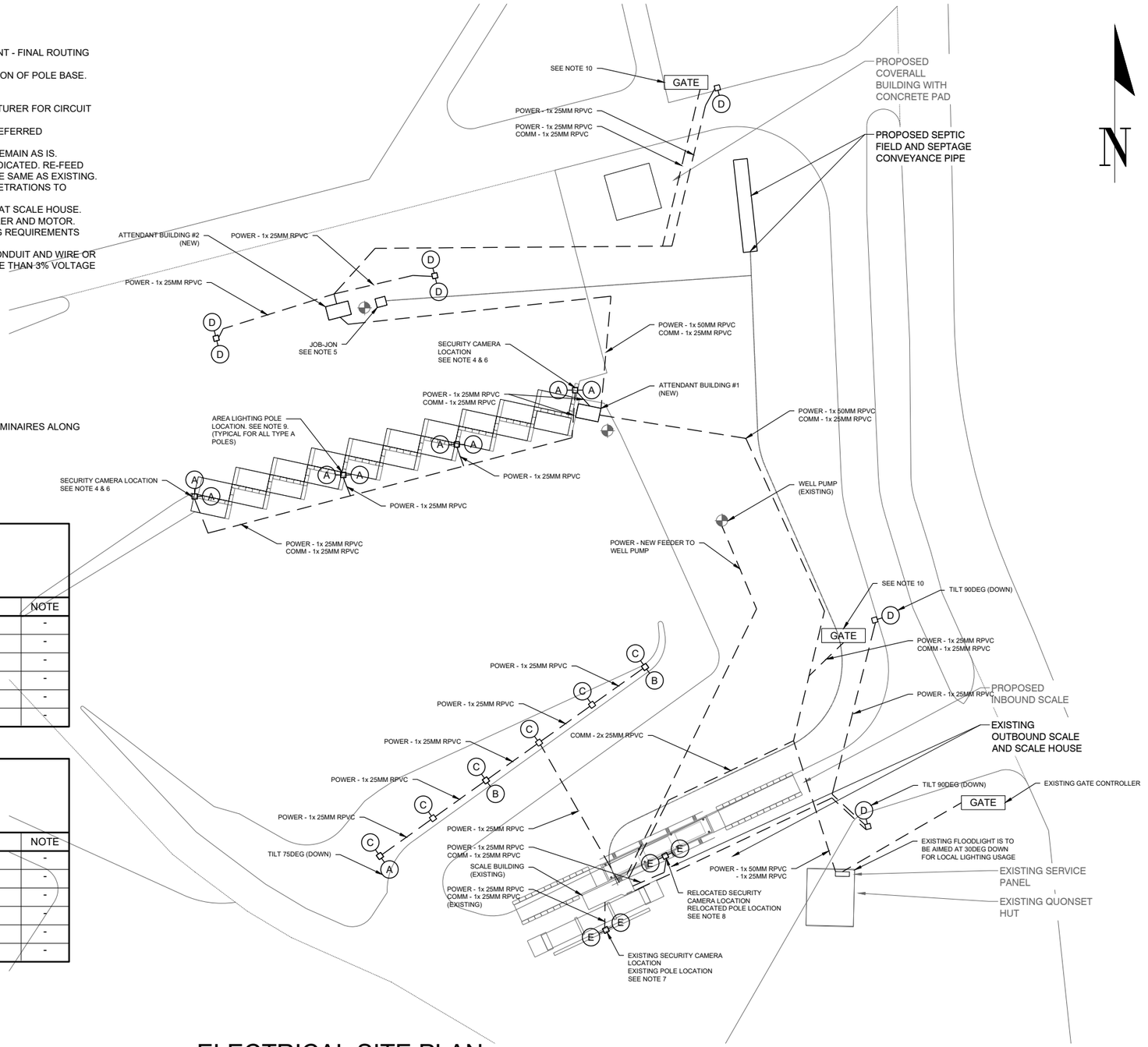
LIGHTING NOTES:
1. TYPE A LUMINAIRES ARE TO BE AIMED 90DEG (DOWN), UNLESS OTHERWISE NOTED
2. TYPE B LUMINAIRES ARE TO BE AIMED 90DEG (DOWN), UNLESS OTHERWISE NOTED
3. TYPE C LUMINAIRES ARE TO BE AIMED 75DEG (DOWN), UNLESS OTHERWISE NOTED
4. TYPE D LUMINAIRES ARE TO BE AIMED 75DEG (DOWN), UNLESS OTHERWISE NOTED
5. TYPE E LUMINAIRES ARE TO BE AIMED 60DEG (DOWN), AS EXISTING TILT ANGLE. AIM RELOCATED LUMINAIRES ALONG AXIS OF THE NEW SCALE PATHWAY

PANEL - ATTENDANT BLDG #1 | VOLTS - 120/240V
MOUNTING - SURFACE | MAIN BUS - 100A
LOCATION - ATTENDANT BLDG #1 | MAIN BREAKER - 60A

| NOTE | DESCRIPTION | BKR | CIRCUIT | | BKR | DESCRIPTION | NOTE |
|---|---|---|---|---|---|---|---|
| - | PTAC UNIT | 20 | 1 | 2 | 40 | ATT. BLDG #2 | - |
| - | - | - | 3 | 4 | 40 | | - |
| - | - | - | 5 | 6 | 20 | EXT LIGHTS | - |
| - | - | - | 7 | 8 | 20 | GATE | - |
| - | - | - | 9 | 10 | 20 | | - |
| - | - | - | 11 | 12 | - | - | - |

PANEL - ATTENDANT BLDG #2 | VOLTS - 120/240V
MOUNTING - SURFACE | MAIN BUS - 100A
LOCATION - ATTENDANT BLDG #2 | MAIN BREAKER - 60A

| NOTE | DESCRIPTION | BKR | CIRCUIT | | BKR | DESCRIPTION | NOTE |
|---|---|---|---|---|---|---|---|
| - | PTAC UNIT | 20 | 1 | 2 | 20 | GATE | - |
| - | JOB JON | 15 | 3 | 4 | 20 | | - |
| - | - | - | 5 | 6 | 20 | EXT LIGHTS | - |
| - | - | - | 7 | 8 | - | - | - |
| - | - | - | 9 | 10 | - | - | - |
| - | - | - | 11 | 12 | - | - | - |




# ELECTRICAL SITE PLAN

1 :1000


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Canada V2K 5B8
T 250.614.4743
www.kysueng.com


Project No: #2026-11
Permit No: 1003300


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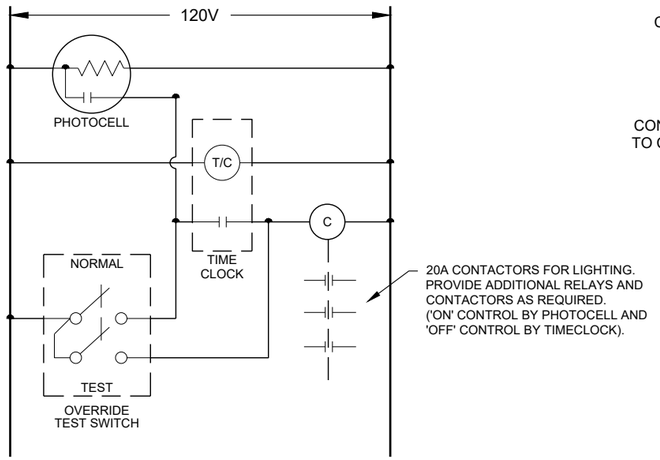
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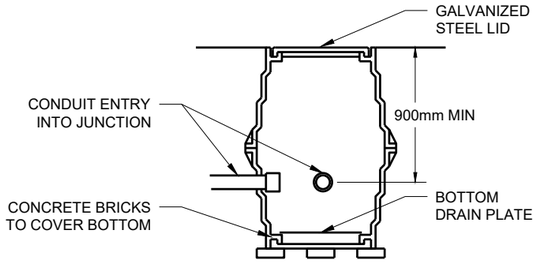
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| APPROVED BY: | LL | | |

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| 26058-100 | B | E-01 |




## OUTDOOR LIGHTING CONTROL WIRING SCHEMATIC

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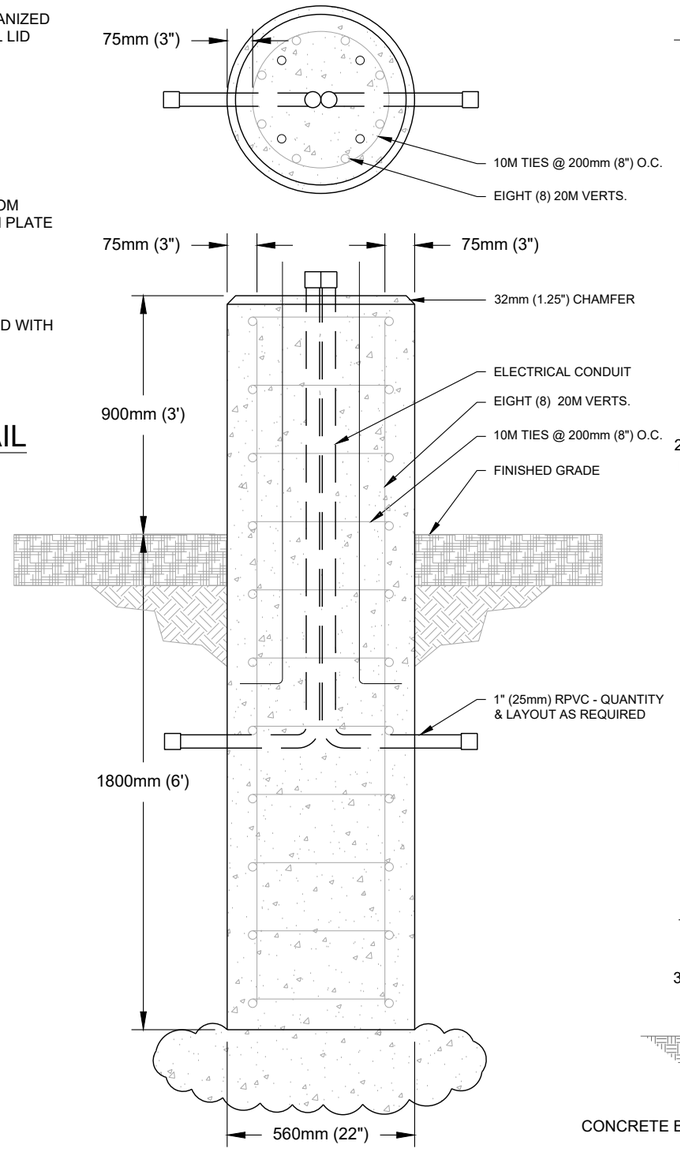



JUNCTION BOX NOTES:

1. TWO ROUND JUNCTION BOXES INSTALLED WITH ONE INVERTED UNDER THE OTHER.
2. PROVIDE BONDING FOR STEEL LID.

## JUNCTION BOX DETAIL

SCALE: NTS

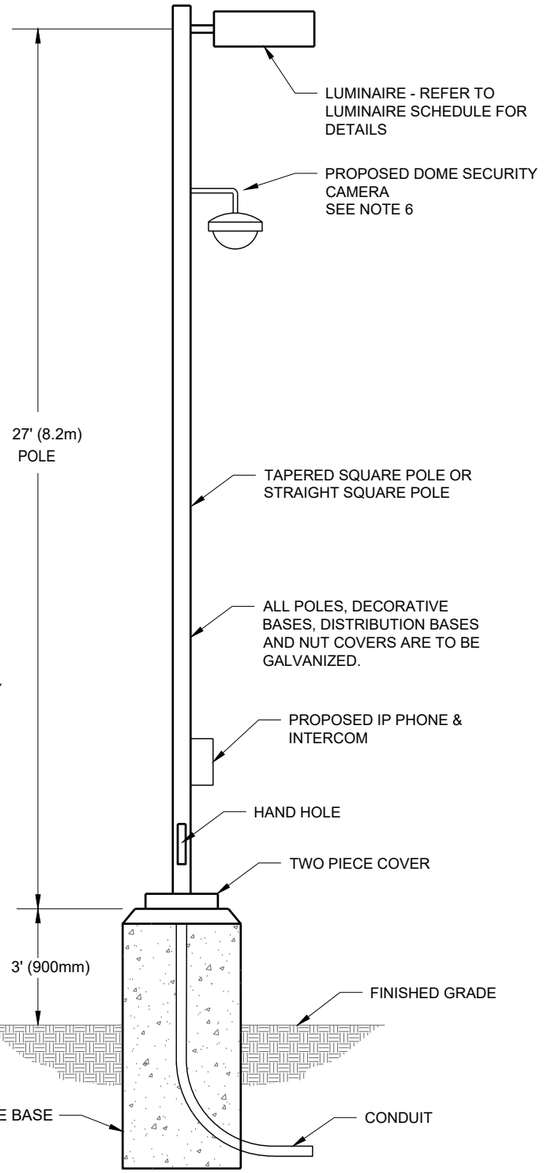



## CONCRETE PEDESTAL (LARGE)

SCALE: NTS

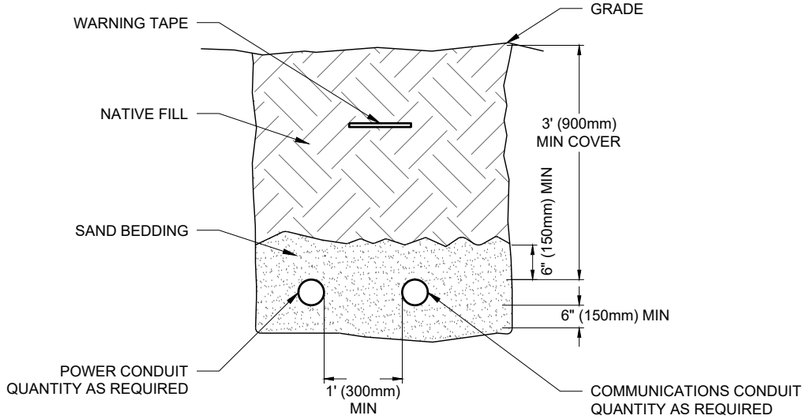
PEDESTAL BASE NOTES:

1. CONCRETE TO BE 20MPA 6-8% AIR, 19mm (¾") MAX. AGGREGATE
2. PROVIDE 32mm (1.25") CHAMFER ON ALL EXPOSED CONCRETE EDGES
3. ALLOW CONCRETE TO POOL OUT BELOW BOTTOM OF SONOTUBE TO REDUCE POSSIBILITY OF FROST HEAVING.




## EXTERIOR LIGHT FIXTURE 'C&D' MOUNTING DETAIL

SCALE: NTS




## TYPICAL TRENCH DETAIL

SCALE: NTS

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OOTISCHENIA TRANSFER STATION DESIGN AND CONSTRUCTION

**ELECTRICAL DETAILS**

| DRAWING NO: | REV | SHEET |
|---|---|---|
| 26058-100 | B | E-02 |

1. SCOPE OF WORK
1.1. PROVIDE ALL NECESSARY LABOUR, MATERIAL, TOOLS, TRANSPORTATION, SERVICES AND FACILITIES REQUIRED FOR THE COMPLETE ELECTRICAL INSTALLATION AS SHOWN ON THE DRAWINGS AND AS SPECIFIED.
1.2. PROVIDE ALL NECESSARY LABOUR, MATERIALS, EQUIPMENT, DEVICES AND APPARATUS NOT MENTIONED IN THE SPECIFICATIONS, OR SHOWN ON THE DRAWINGS AS REQUIRED FOR THE COMPLETE ELECTRICAL INSTALLATION.

2. CODE, RULES AND REGULATIONS
2.1. ELECTRICAL INSTALLATION SHALL BE IN ACCORDANCE WITH THE CURRENT EDITION OF THE CANADIAN ELECTRICAL CODE, NATIONAL BUILDING CODE, AND APPLICABLE MUNICIPAL AND PROVINCIAL CODES, RULES AND REGULATIONS.
2.2. PROVIDE ALL NECESSARY MATERIAL AND LABOUR REQUIRED TO MEET THE REQUIREMENTS OF THESE CODES, RULES AND REGULATIONS EVEN THOUGH THE WORK MAY NOT BE SHOWN ON THE DRAWINGS OR MENTIONED IN THE SPECIFICATIONS.

3. PERMITS AND FEES
3.1. OBTAIN ALL PERMITS AND PAY ALL FEES REQUIRED FOR THE ELECTRICAL INSTALLATION.

4. CO-OPERATION WITH OTHER TRADES
4.1. CHECK WITH OTHER TRADES TO AVOID DELAYS.

5. APPROVAL OF MATERIALS
5.1. ELECTRICAL EQUIPMENT SHALL BE NEW AND OF THE TYPE AND QUALITY SPECIFIED.

6. CERTIFICATION OF INSPECTION
6.1. OBTAIN A CERTIFICATE OF INSPECTION AND APPROVAL FROM THE ELECTRICAL INSPECTION DEPARTMENT HAVING JURISDICTION OVER THE WORK. CERTIFICATE OF INSPECTION SHALL BE SUBMITTED TO THE ARCHITECT ON COMPLETION OF THE WORK.

7. CLEAN UP
7.1. REMOVE ALL DEBRIS FROM THE SITE AS IT OCCURS, AND DO NOT ALLOW TO ACCUMULATE.
7.2. TOUCH UP WITH MATCHING PAINT ANY EQUIPMENT THAT HAS BEEN DAMAGED DURING CONSTRUCTION.

8. GUARANTEE
8.1. THE SATISFACTORY OPERATION OF ALL WORK AND APPARATUS INCLUDED AND INSTALLED UNDER THIS SECTION OF THE SPECIFICATION SHALL BE GUARANTEED FOR A PERIOD OF ONE YEAR UNLESS NOTED OTHERWISE.
8.2. REPLACE FORTHWITH, AT NO ADDITIONAL COST TO THE OWNER, ANY PART WHICH MAY PROVE TO BE DEFECTIVE WITHIN A PERIOD OF TWELVE MONTHS AFTER THE FINAL ACCEPTANCE OF THE COMPLETE BUILDING, PROVIDED THAT SUCH FAILURE IS NOT DUE TO ANY IMPROPER USAGE OR ORDINARY WEAR AND TEAR
8.3. NO CERTIFICATE GIVEN, PAYMENT MADE, PARTIAL OR ENTIRE USE OF THE EQUIPMENT BY THE OWNER, SHALL BE CONSTRUED AS ACCEPTANCE OF DEFECTIVE WORK.

9. CONDUIT AND RACEWAY
9.1. RIGID STEEL CONDUIT: FOR ALL EXPOSED AND UNDERGROUND CONDUIT EXPOSED TO MECHANICAL DAMAGE. (MINIMUM SIZE: 3/4" (19mm))
9.2. ELECTRICAL METALLIC TUBING (EMT): INTERIOR POWER AND LIGHTING BRANCH CIRCUITS WHERE RUN CONCEALED ABOVE SUSPENDED CEILING, IN STUD WALLS, FURRED SPACES, AND WHERE NOT EXPOSED TO MECHANICAL DAMAGE, OR ABOVE 6' (1830mm) FROM FLOOR. (MINIMUM SIZE: 3/4" (19mm))
9.3. ELECTRICAL NON-METALLIC TUBING (ENT): INTERIOR BRANCH CIRCUITS & COMMUNICATIONS CABLING WHERE ENCLOSED IN CONCRETE SLAB. ENT MUST BE SMOOTH INTERIOR WALL TYPE. SUBMIT SHOP DRAWING FOR APPROVAL PRIOR TO USE. (MINIMUM SIZE: 3/4" (19mm))
9.4. FLEXIBLE METALLIC CONDUIT: IN DRY LOCATIONS, CONNECTION TO TRANSFORMERS, (6' (1830mm) MAX.), VIBRATING EQUIPMENT (24" (610mm) MAX) AND TO RECESSED LIGHTING FIXTURES
9.5. LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT: IN DAMP AND WET LOCATIONS FOR CONNECTION TO ALL PUMP MOTORS, SOLENOID VALVES, HVAC EQUIPMENT AND SIMILAR DEVICES SHALL BE MADE USING LIQUID TIGHT FLEXIBLE METALLIC CONDUIT. PROVIDE SEPARATE GROUND WIRE INDEPENDENT OF CONDUIT, RUN INSIDE CONDUIT AND BONDED AT BOTH ENDS TO ENCLOSURES. MAXIMUM LENGTH OF 24" (610mm).
9.6. CONDUIT IN DIRECT CONTACT WITH EARTH TO BE RIGID PVC TYPE.
9.7. CONDUIT SYSTEM SHALL BE CONCEALED UNLESS EXPOSED WORK IS CLEARLY CALLED FOR ON DRAWINGS
9.8. CONDUITS SHALL BE TIGHTLY COVERED AND WELL PROTECTED DURING CONSTRUCTION USING METALLIC BUSHINGS AND BUSHING "PENNIES" TO SEAL OPEN END
9.9. IN ALL EMPTY CONDUITS OR DUCTS, INSTALL A 200 lb (90 kg) TENSILE STRENGTH POLYETHYLENE PULLING ROPE
9.10. CONDUIT SYSTEMS SHALL BE ELECTRICALLY CONTINUOUS THROUGHOUT. INSTALL CODE SIZED, INSULATED, COPPER, GREEN GROUNDING CONDUCTOR IN ALL CONDUIT RUNS PULLED WITH PHASE AND/OR NEUTRAL CONDUCTORS
9.11. LOCATIONS OF CONDUIT RUNS SHALL BE PLANNED IN ADVANCE OF THE INSTALLATION AND COORDINATED WITH THE DUCTWORK, PLUMBING, CEILING AND WALL CONSTRUCTION IN THE SAME AREAS AND SHALL NOT UNNECESSARILY CROSS OTHER CONDUITS OR PIPE, NOR PREVENT REMOVAL OF CEILING OR TILES OR PANELS, NOR BLOCK ACCESS TO MECHANICAL OR ELECTRICAL EQUIPMENT
9.12. WHERE PRACTICAL, INSTALL CONDUITS IN GROUPS, IN PARALLEL, FOR VERTICAL AND HORIZONTAL RUNS AND AT ELEVATIONS THAT AVOID UNNECESSARY OFFSETS
9.13. EXPOSED CONDUIT SHALL BE RUN PARALLEL OR AT RIGHT ANGLES TO THE CENTERLINES OF COLUMNS AND BEAMS
9.14. CONDUITS SHALL NOT BE PLACED CLOSER THAN 12" (300mm) FROM A PARALLEL HOT WATER OR STEAM LINE OR 3" (75mm) FROM SUCH LINES CROSSING PERPENDICULAR TO THE RUNS
9.15. CONDUIT RUN IN UNDER FLOOR LAYER BELOW WOOD FLOORING SHALL NOT BE RUN IN SAME DIRECTION AS FLOORING
9.16. ALL RACEWAY SYSTEMS SHALL BE SECURED TO THE BUILDING STRUCTURES USING SPECIFIED FASTENERS, CLAMPS AND HANGERS SPACED ACCORDING TO CODE REQUIREMENTS
9.17. SUPPORT SINGLE RUNS OF CONDUIT USING ONE HOLE PIPE STRAPS. WHERE RUN HORIZONTALLY ON WALLS IN DAMP OR WET LOCATION, INSTALL "CLAMP-BACKS" TO SPACE CONDUIT OFF THE SURFACE
9.18. MULTIPLE CONDUIT RUNS SHALL BE SUPPORTED USING "TRAPEZE" HANGERS, FABRICATED FROM SPECIFIED CONSTRUCTION CHANNEL, MOUNTED TO 3/8" (9.5mm) DIAMETER, THREADED STEEL RODS SECURED TO BUILDING STRUCTURES. FASTEN CONDUIT TO CONSTRUCTING CHANNEL WITH STANDARD ONE HOLE PIPE CLAMPS OR THE EQUIVALENT
9.19. RACEWAYS SHALL BE JOINED USING SPECIFIED COUPLING OR TRANSITION COUPLINGS WHERE DISSIMILAR RACEWAY SYSTEMS ARE JOINED.
9.20. CONDUITS SHALL BE SECURELY FASTENED TO CABINETS, BOXES, AND GUTTERS USING TWO LOCKNUTS AND AN INSULATING BUSHING OR SPECIFIED INSULATING CONNECTORS. INSTALL GROUNDING BUSHINGS OR BONDING JUMPERS ON ALL CONDUITS TERMINATING AT CONCENTRIC KNOCKOUTS.
9.21. CONDUIT TERMINATIONS EXPOSED AT WEATHERPROOF ENCLOSURES AND CAST OUTLET BOXES SHALL BE MADE WATERTIGHT USING SPECIFIED CONNECTORS AND HUBS.
9.22. INSTALL EXPANSION COUPLINGS WHERE ANY CONDUIT CROSSES A BUILDING SEPARATION OR EXPANSION JOINT.
9.23. ALL FLOOR PENETRATIONS SHALL BE SEALED WATER-TIGHT. MAINTAIN FIRE RATING AS REQUIRED.
9.24. FIRE-SAFE ALL RATED WALL PENETRATIONS USING 3M LISTED FIRE-SAFING SEALANTS AND ASSEMBLIES.

10. BOXES AND WIRING SERVICES.
10.1. EXPOSED OUTLET BOXES AND BOXES IN DAMP AND WET LOCATIONS SHALL BE CAST METAL WITH GASKETED CAST METAL COVER PLATES.
10.2. OUTLET BOXES SHALL BE INSTALLED AT THE LOCATIONS AND ELEVATIONS SHOWN ON THE DRAWINGS OR SPECIFIED HEREIN. MAKE ADJUSTMENTS TO LOCATIONS AS REQUIRED BY STRUCTURAL CONDITIONS AND TO SUIT COORDINATION REQUIREMENTS OF OTHER TRADES.

11. CABLE AND WIRE
11.1. CONDUCTORS SHALL NOT BE INSTALLED IN CONDUIT UNTIL ALL WORK OF ANY NATURE THAT MAY CAUSE DAMAGE IS COMPLETED. CARE SHALL BE TAKEN IN PULLING CONDUCTORS THAT INSULATION IS NOT DAMAGED. U.L. AND C.S.A. APPROVED NON-PETROLEUM BASE AND INSULATING TYPE PULLING COMPOUND SHALL BE USED AS NEEDED.
11.2. ALL CABLES SHALL BE INSTALLED AND TESTED IN ACCORDANCE WITH MANUFACTURERS REQUIREMENTS AND WARRANTY.
11.3. ALL ASPECTS OF SPLICING AND TERMINATING SHALL BE IN ACCORDANCE WITH CABLE MANUFACTURERS PUBLISHED PROCEDURES.
11.4. MAKE UP ALL SPLICES IN OUTLET BOXES WITH CONNECTORS AS SPECIFIED HEREIN WITH SEPARATE TAILS OF CORRECT COLOR TO BE MADE UP TO SPLICE. PROVIDE AT LEAST 6" (150mm) OF TAILS PACKED IN BOX AFTER SPLICE IS MADE UP.
11.5. ALL WIRE AND CABLE IN PANELS, TERMINAL CABINETS AND EQUIPMENT ENCLOSURES SHALL BE BUNDLED AND CLAMPED.
11.6. ALL FEEDERS LESS THAN 60A SHALL BE COPPER. FEEDERS LARGER THAN 60A MAY UTILIZE ALUMINIUM CONDUCTORS WITH ENGINEER APPROVAL
11.7. MINIMUM WIRE SIZE SHALL BE NO. 12 AWG R90 COPPER.

12. WIRING DEVICES
12.1. SWITCHES
12.1.1. SPECIFICATION GRADE, WHITE, DECORATOR STYLE AVAILABLE FOR BACK AND SIDE WIRING. 20A, 120V OR 347V, SINGLE POLE, DOUBLE POLE, THREE-WAY OR FOUR-WAY AS INDICATED.
12.2. RECEPTACLES
12.2.1. SPECIFICATION GRADE, WHITE, DECORATOR STYLE DUPLEX RECEPTACLE CSA TYPE 5-15R, 125V, 15A U-GROUNDED.
12.2.2. GROUND FAULT INTERRUPTER TYPE TO BE INDICATING, SPECIFICATION GRADE, IMPACT RESISTANT, U GROUND, COMPLETE WITH BREAKER AND RESET BUTTON.
12.2.3. INSTALL ALL RECEPTACLES IN THE VERTICAL PLANE UNLESS OTHERWISE NOTED.
12.3. DIMMERS
12.3.1. FLUSH MOUNTED TYPE, WHITE. (1000 WATTS RATED)
12.3.2. ELECTRONIC WITH PRESET.
12.4. COVER PLATES
12.4.1. STAINLESS STEEL, 1mm THICK BRUSHED COVER PLATES.
12.4.2. WEATHERPROOF, DURABLE, 'IN-USE' RATED COVER PLATES COMPLETE WITH GASKETS FOR WP DUPLEX RECEPTACLES AS INDICATED.
12.4.3. INSTALL SINGLE THROW SWITCHES WITH HANDLE IN "UP" POSITION WHEN SWITCH CLOSED.
12.4.4. INSTALL RECEPTACLES/SWITCHES VERTICALLY IN GANG TYPE OUTLET BOX WHEN MORE THAN ONE RECEPTACLE IS REQUIRED IN ONE LOCATION.

13. PROTECTIVE DEVICES
13.1. CIRCUIT BREAKERS: MOLDED CASE, BOLT-ON, THERMAL MAGNETIC TYPE, 40 DEGREES C. AMBIENT TEMPERATURE COMPENSATED, FIXED MOUNTING, WITH QUICK-MAKE AND QUICK-BREAK SWITCHING MECHANISM MECHANICALLY TRIP-FREE FROM THE OPERATING HANDLE.
13.2. RATINGS: REFER TO DRAWINGS AND PANEL SCHEDULES FOR TRIP FRAME AND POLES REQUIRED. MINIMUM SHORT CIRCUIT RATING FOR 120/240 VOLT BREAKERS IS 10,000 A, IF NOT INDICATED OTHERWISE.
13.3. MANUAL MOTOR STARTERS: FRACTIONAL H.P. 1 PHASE MOTORS SHALL BE PROTECTED BY THERMAL O.L. RELAY INTEGRAL WITH THE DISCONNECT.

14. GROUNDING
14.1. ENCLOSURES OF EQUIPMENT, RACEWAYS, AND FIXTURES SHALL BE PERMANENTLY AND EFFECTIVELY GROUNDED. PROVIDE CODE-SIZED (UNLESS OTHERWISE INDICATED) COPPER, INSULATED GREEN EQUIPMENT GROUND WITH ALL BRANCH AND FEEDER CIRCUIT RUNS. EQUIPMENT GROUND SHALL ORIGINATE AT PANEL BOARD GROUND BUS AND SHALL BE BONDED TO ALL SWITCH AND RECEPTACLE BOXES AND ELECTRICAL EQUIPMENT ENCLOSURES.

15. LIGHTING FIXTURES
15.1. SUBMIT SHOP DRAWINGS PRIOR TO ORDERING.
15.2. ALL FIXTURES ARE TO BE AS PER LUMINAIRE SCHEDULE.
15.3. LED FIXTURES:
15.3.1. LED FIXTURES SHALL BE 3000 DEGREE K UNLESS SPECIFIED OTHERWISE.
15.3.2. LUMEN OUTPUTS SHALL BE AS PER LUMINAIRE SCHEDULES. MINIMUM LUMENS PER WATT FOR ALL LED FIXTURES SHALL BE MINIMUM 90 LPW.
15.3.3. LED FIXTURE ARE TO HAVE A LP70 OF 50,000 HOURS OR GREATER.
15.4. FIXTURE INSTALLATION
15.4.1. CONTRACTOR SHALL BE RESPONSIBLE FOR HANDLING AND STORAGE. FIXTURES SHALL BE INSTALLED PLUMB, LEVEL, IN STRAIGHT LINES WITHOUT DISTORTION AND CLEAN.
15.4.2. INSTALL EACH FIXTURE IN A MANNER RECOMMENDED BY THE FIXTURE MANUFACTURER AND APPROVED BY THE OWNER'S REPRESENTATIVE. UNDER THIS SECTION OF THE WORK, FURNISH AND INSTALL ALL ADDITIONAL BRACING, HANGER SUPPORTS AND OTHER STRUCTURAL REINFORCEMENTS REQUIRED TO PROPERLY AND SAFELY SUPPORT FIXTURES, ALL AS APPROVED BY THE ENGINEER.

16. LIGHTING CONTROLS
16.1. PHOTOCELLS / DAYLIGHT SENSORS
16.1.1. PHOTOCELL(S) ARE TO BE LOCATED NEAR AREA OF CONTROLLED LIGHTING. PROVIDE PHOTOCELLS AS REQUIRED AND AS NOTED BY DRAWINGS.
16.1.2. ORIENT PHOTOCELLS AWAY FROM LIGHT SOURCES.

17. SECURITY SYSTEM
17.1. PROVIDE CONDUIT, OUTLET BOXES, BACK BOXES AND WIRING AS NOTED ON THE DRAWINGS FOR A COMPLETE AND OPERATIONAL SECURITY SYSTEM.
17.2. PREFERRED EQUIPMENT IS -
17.2.1. CAMERA SYSTEM - AVIGILON H4
17.2.2. SAFETY PHONE - AXIS COMMUNICATIONS - 2N IP SAFETY - 01353-001
17.3. PRE-APPROVED SECURITY CONTRACTOR IS -
DHC COMMUNICATIONS - 250-352-0861 - ADAM TROMMESHAUSER

18. RECORD DRAWING
18.1. ELECTRICAL CONTRACTOR TO PROVIDE AS-BUILT MARKUPS TO ENGINEER FOR RECORD DRAWINGS.
18.2. AS-BUILT MARKUPS ARE TO INDICATE THE FOLLOWING ITEMS:
18.2.1. ALL REVISIONS TO DRAWINGS FROM SITE INSTRUCTIONS AND CHANGE ORDERS ARE TO BE INDICATED.
18.2.2. DEVICE LOCATION AND CIRCUITING WHERE DIFFERS FROM ORIGINAL DRAWINGS.
18.2.3. LUMINAIRE TYPE, LOCATION, CIRCUITING AND CONTROL WHERE DIFFERS FROM ORIGINAL DRAWINGS.
18.2.4. COMMUNICATION DROP ADDRESS.
18.2.5. ALL ABANDONED JUNCTION BOXES AND CONDUITS.

19. MAINTENANCE MANUALS
19.1. PROVIDE OPERATION AND MAINTENANCE DATA FOR INCORPORATION INTO MAINTENANCE MANUALS AS FOLLOWS IN HARD COVER 3 RING BINDER C/W INDEX TAB SEPARATORS. PROVIDE THREE (3) HARD COPIES AND ONE (1) PDF SOFTCOPY. SOFTCOPY MAY BE SUBMITTED USING COMPACT DISC, USB FLASH DRIVE OR EMAIL.
19.2. TECHNICAL DATA, PRODUCT DATA, SUPPLEMENTED BY BULLETINS COMPONENT ILLUSTRATIONS, EXPLODED VIEWS, TECHNICAL DESCRIPTIONS OF ITEMS AND PARTS LISTS. (ADVERTISING OR SALES LITERATURE IS NOT ACCEPTABLE)
19.3. WIRING AND SCHEMATIC DIAGRAMS
19.4. NAMES AND ADDRESSES OF LOCAL SUPPLIERS FOR ITEMS INCLUDED IN MAINTENANCE MANUALS.

KySu Consulting Ltd
Prince George, BC
Canada V2K 5B8
T 250.614.4743
www.kysueng.com
Project No: #2026-11
Permit No: 1003300

SPERLING HANSEN ASSOCIATES
Landfill Services Group
• Landfill Siting
• Design & Operations Plans
• Landfill Closure
• Environmental Monitoring
#8 - 1225 Keith Road East
North Vancouver, B.C. V7J 1J3
Phone: (604) 986-7723

SEAL

| No. | DATE yr/m/day | REVISIONS | DRAWN | CHK'D | APP'D |
|---|---|---|---|---|---|
| B | 2026/09/29 | ISSUED FOR TENDER | AL | LL | LL |
| A | 2026/09/16 | ISSUED FOR TENDER REVIEW | AL | LL | LL |

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CLIENT:

| | | | |
|---|---|---|---|
| DESIGN BY: | LL | SHA PROJECT # PRJ26058 | |
| DRAWN BY: | AL | DATE CREATED:2026/08/04 | |
| CHECKED BY: | LL | SCALE: AS SHOWN | |
| APPROVED BY: | LL | | |

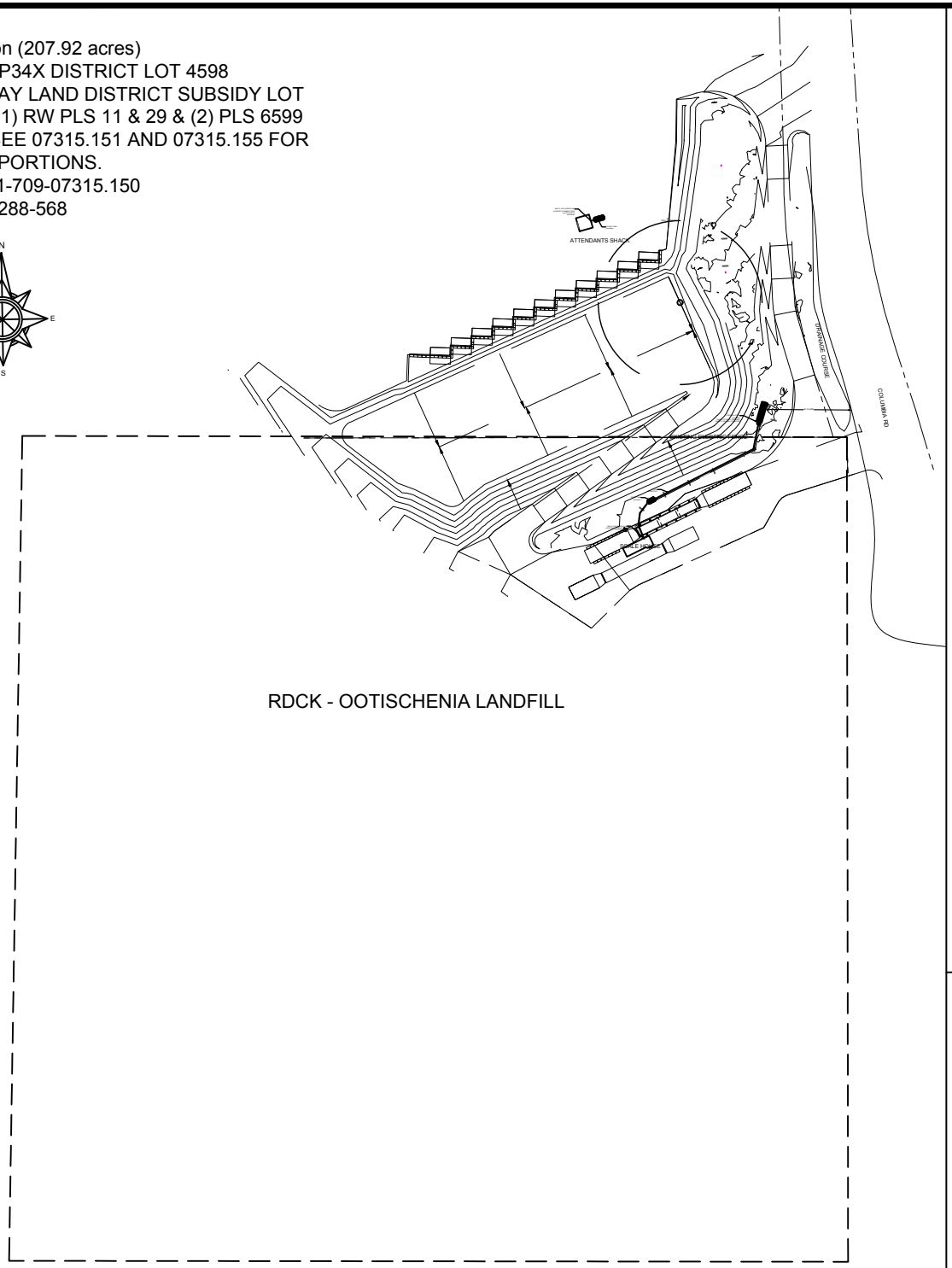
OOTISCHENIA TRANSFER STATION DESIGN AND CONSTRUCTION

**ELECTRICAL SPECIFICATIONS**

| DRAWING NO: | REV | SHEET |
|---|---|---|
| 26058-100 | B | E-03 |

Description (207.92 acres)
PLAN NEP34X DISTRICT LOT 4598
KOOTENAY LAND DISTRICT SUBSIDY LOT 23, EXC (1) RW PLS 11 & 29 & (2) PLS 6599 & 6690; SEE 07315.151 AND 07315.155 FOR LEASED PORTIONS.
FOLIO: 21-709-07315.150
PID: 017-288-568




NOTES:

DRAWING IS FOR A NEW SEPTIC SYSTEM WITH A DESIGN FLOW OF 480 L/DAY (4 PERSON(S) OPEN SITE WITHOUT CANTEEN)

ALL REQUIRED HORIZONTAL SETBACKS TO MEET SPM V3 TABLES II-19

DISPERSAL SYSTEM TO MEET SPM V3 SECTIONS II-6.5, III-6.5, II-6.7 AND III-6.7, TABLES II-35, II-37 & II-38

GRAVITY DISTRIBUTION TO MEET SPM V3 SECTIONS II-6.9/III-6.9

TANK AND EFFLUENT FILTER INSTALLATION AS PER SPMV3 SECTIONS II-6.4/III-6.4

INLET PLUMBING TO TANK TO BE INSTALLED PER THE BC PLUMING CODE. ALL TANK CONNECTIONS SHOULD BE PROPERLY SUPPORTED ON COMPACTED MATERIAL

NO BUILDING FLOOR DRAINS OR OTHER DRAINS (IE. BOILER CONDENSATE) PERMITTED IN SEWERAGE SYSTEM. NO GARBAGE DISPOSAL UNITS (GARBURATORS).

ALL CHANGES TO DRAWINGS DURING INSTALLATION MUST BE COMMUNICATED AND APPROVED IN WRITING VIA KSP SEPTIC INC.

ALL MEASUREMENTS MUST BE VERIFIED ON SITE BY AUTHORIZED PERSON OR SITE SURVEY PRIOR TO CONSTRUCTION. ALL PROPERTY LINE DIMENSIONS BASED ON RDKB MAPPING TOOL AND SUPPLIED CLIENT DRAWING

ALL WORK IS TO BE PERFORMED WHEN THE SITE IS DRY & COMPACTION FROM MACHINERY WILL NOT CAUSE SIGNIFICANT DAMAGE TO THE DISPERSAL FIELD

ALL DRAIN, ROOF AND SURFACE RUNOFF ARE TO BE DIRECTED AWAY FROM THE TANKS AND DISTRIBUTION AREAS. ANY MODIFICATIONS TO OVERGROUND WATER FLOW MUST BE DIVERTED AWAY FROM AREA

SEED OR SOD THE SITE IMMEDIATELY AFTER CONSTRUCTION TO PREVENT EROSION.

IF SOILS VARY CONSIDERABLY FROM STATED SOILS IN SEEPAGE BED PROFILE, CONTACT KSP SEPTIC INC. IMMEDIATELY

CONSTRUCTION TIMELINE MUST BE COMMUNICATED TO KSP SEPTIC INC SO APPROPRIATE SITE INSPECTIONS AND COMMISSIONING CAN BE COMPLETED

THIS DRAWING IS NOT TO BE USED FOR CONSTRUCTION PURPOSES UNTIL NOTED AND DATED "APPROVED FOR CONSTRUCTION"

SYSTEM OWNER MUST RETAIN A AUTHORIZED PERSON (AP), PROFESSIONAL OR ROWP, TO PLAN, INSTALL AND MAINTAIN THE SEWERAGE SYSTEM AS OUTLINED IN THE SEWERAGE SYSTEM REGULATIONS (MINISTRY OF HEALTH)

SYSTEM OWNER IS RESPONSIBLE FOR OPERATION AND MAINTENANCE OF THE SYSTEM, INCLUDING AN AP TO UNDERTAKE MAINTENANCE OF THE SYSTEM

KSP SEPTIC INC NOT RESPONSILBE FOR SEWER GASES INSIDE BUILDINGS DUE TO PLUMBING ISSSUES WITHIN THE BUILDING



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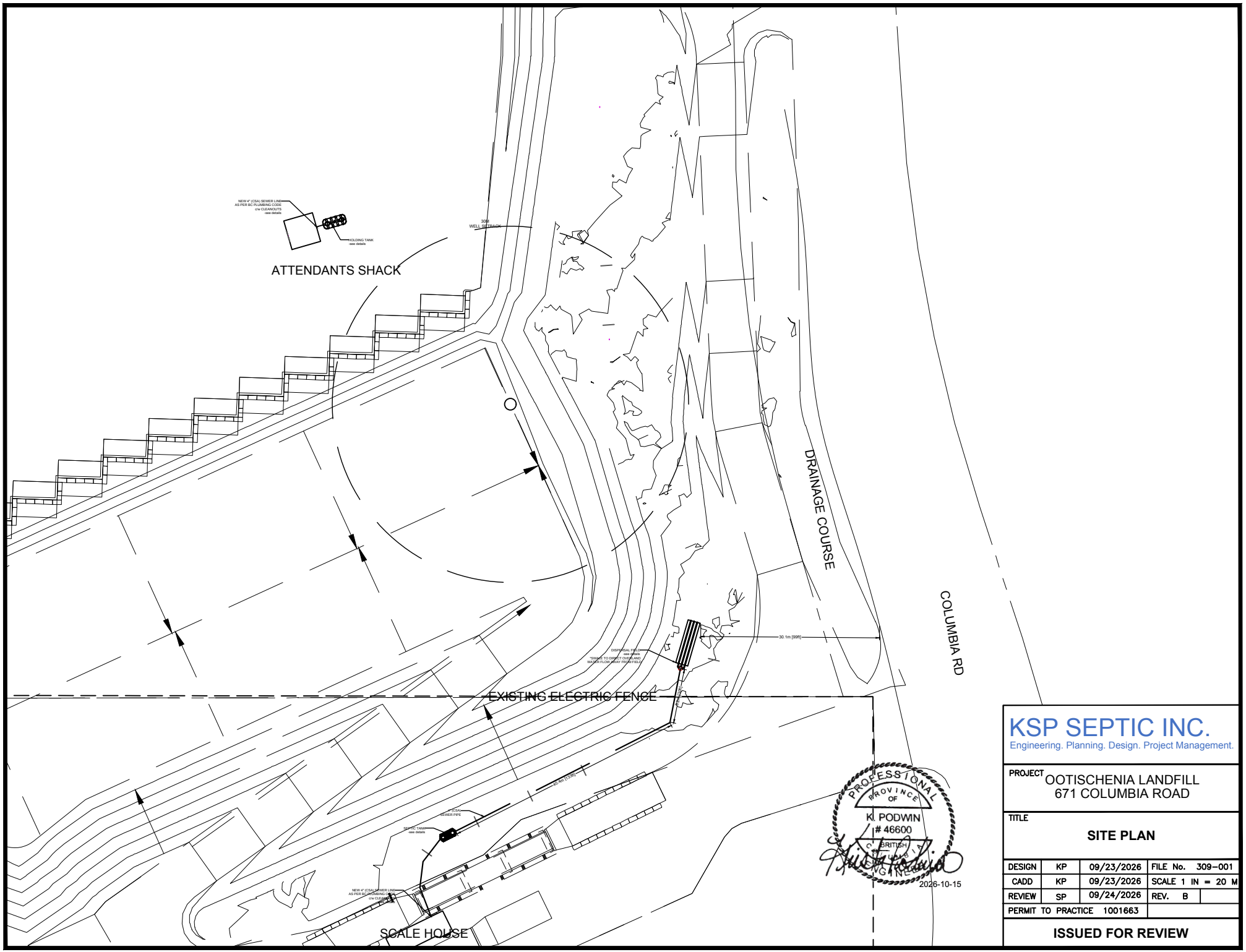
**KSP SEPTIC INC.**
Engineering. Planning. Design. Project Management.

PROJECT
OOTISCHENIA LANDFILL
671 COLUMBIA ROAD

TITLE
**SITE PLAN**

| | | | |
|---|---|---|---|
| DESIGN | KP | 09/23/2026 | FILE No. 309-001 |
| CADD | KP | 09/23/2026 | SCALE 1 IN = 60 M |
| REVIEW | SP | 09/24/2026 | REV. B |
| PERMIT TO PRACTICE 1001663 | | | |

**ISSUED FOR REVIEW**




PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
K. PODWIN
# 46600

2026-10-15

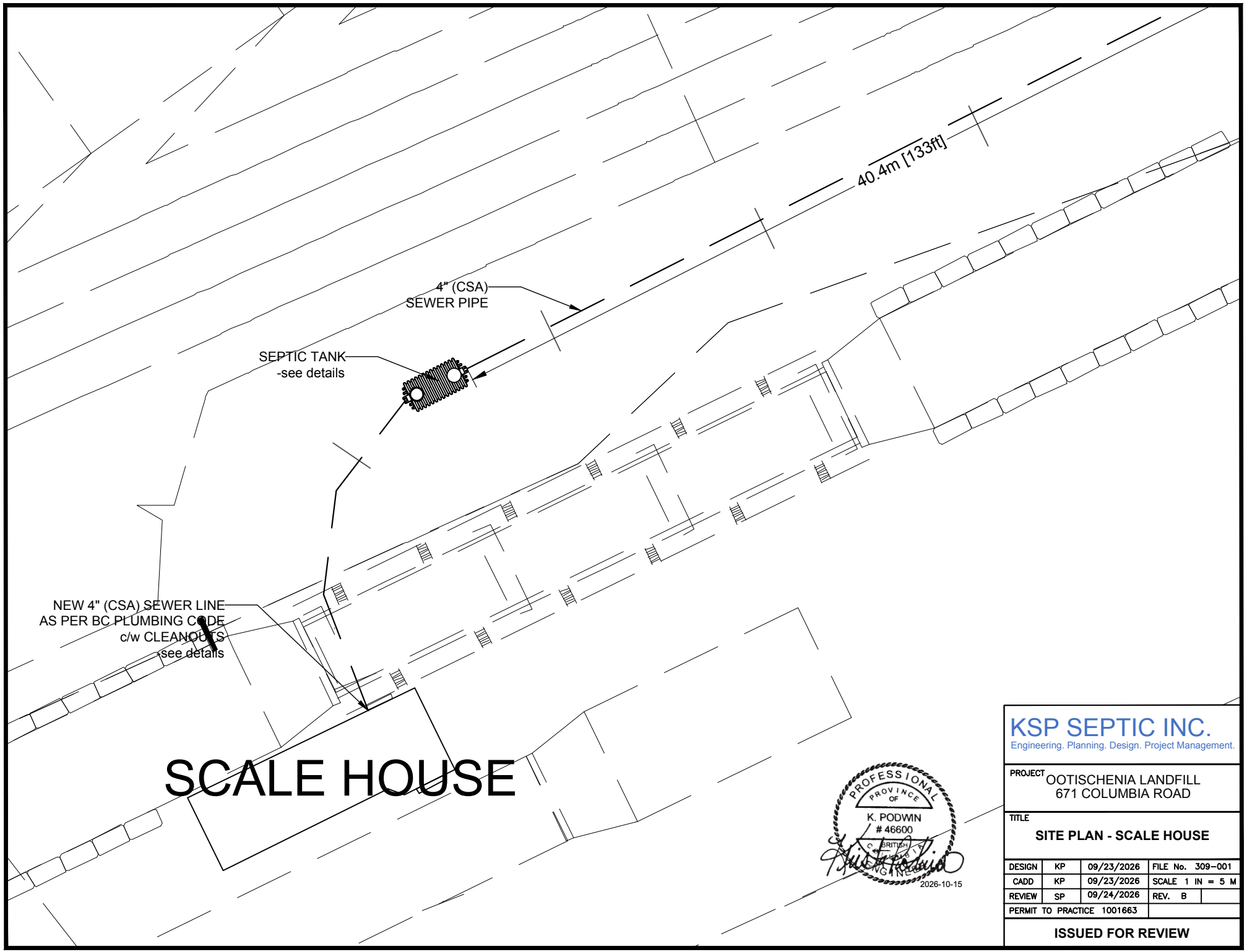
**KSP SEPTIC INC.**
Engineering. Planning. Design. Project Management.

PROJECT
OOTISCHENIA LANDFILL
671 COLUMBIA ROAD

TITLE
**SITE PLAN**

| | | | |
|---|---|---|---|
| DESIGN | KP | 09/23/2026 | FILE No. 309-001 |
| CADD | KP | 09/23/2026 | SCALE 1 IN = 20 M |
| REVIEW | SP | 09/24/2026 | REV. B |
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PROVINCE OF BRITISH COLUMBIA
K. PODWIN
# 46600
2026-10-15

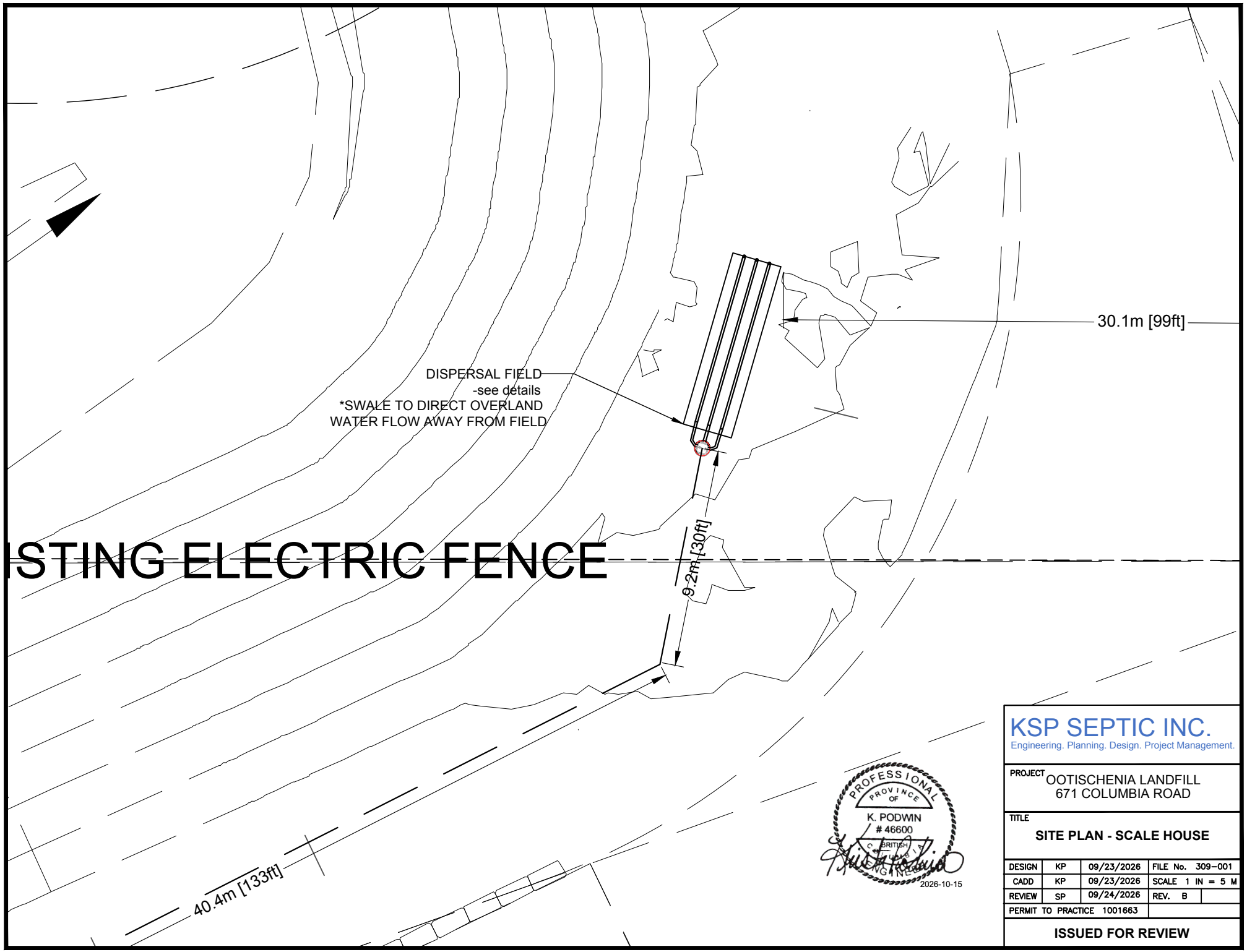
**KSP SEPTIC INC.**
Engineering. Planning. Design. Project Management.

PROJECT
OOTISCHENIA LANDFILL
671 COLUMBIA ROAD

TITLE
**SITE PLAN - SCALE HOUSE**

| | | | |
|---|---|---|---|
| DESIGN | KP | 09/23/2026 | FILE No. 309-001 |
| CADD | KP | 09/23/2026 | SCALE 1 IN = 5 M |
| REVIEW | SP | 09/24/2026 | REV. B |
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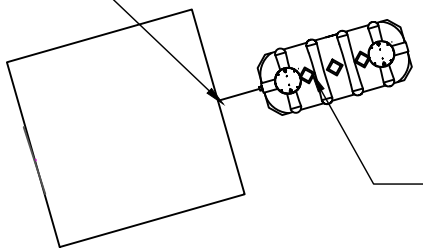
PROJECT
OOTISCHENIA LANDFILL
671 COLUMBIA ROAD

TITLE
**SITE PLAN - SCALE HOUSE**

| | | | |
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| PERMIT TO PRACTICE 1001663 | | | |

**ISSUED FOR REVIEW**

NEW 4" (CSA) SEWER LINE
AS PER BC PLUMBING CODE
c/w CLEANOUTS
-see details



HOLDING TANK
-see details

30M
WELL SETBACK

# ATTENDANTS SHACK

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
K. PODWIN
# 46600
2026-10-15

KSP SEPTIC INC.
Engineering. Planning. Design. Project Management.

PROJECT
OOTISCHENIA LANDFILL
671 COLUMBIA ROAD

TITLE
**SITE PLAN - ATTENDANTS SHACK**

| | | | |
|---|---|---|---|
| DESIGN | KP | 09/23/2026 | FILE No. 309-001 |
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| PERMIT TO PRACTICE 1001663 | | | |

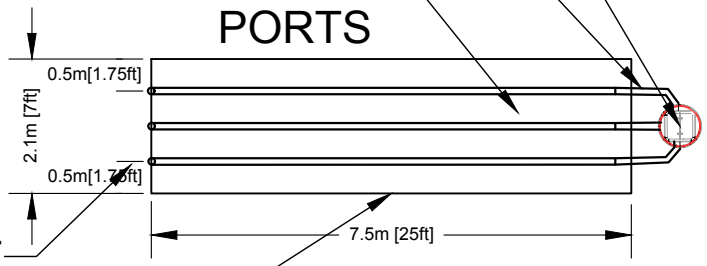
**ISSUED FOR REVIEW**

# 7.5M [25ft] X 2.1M [7ft] GRAVITY DISPERSAL FIELD

6 HOLE POLYLOK D-BOX
c/w 3 POLY LOK ROTOFLOW EQUALIZERS

SOLID WALLED PIPE
MIN.1% SLOPE TO

2 - 4" SCH40 SEWER PIPE OBSERVATION PORTS




TYP - 4" CLEAN OUT

GRAVITY SEEPAGE BED AIS 16 $M^2$

3 - 4" SCH.40 PVC SEWER PIPE (CSA)
SLOPE <0.2%

NOTE: SOD/CLOVER (OR EQUIV.) TO BE PLACED
ON COVER SOIL IMMEDIATELY FOLLOWING INSTALLATION

PROFESSIONAL ENGINEER
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# 46600
2026-10-15

KSP SEPTIC INC.
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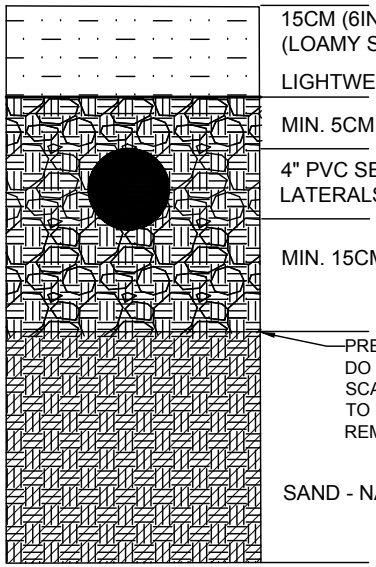
PROJECT
OOTISCHENIA LANDFILL
671 COLUMBIA ROAD

TITLE
**DISPERSAL FIELD**

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| REVIEW | SP | 09/24/2026 | REV. B |
| PERMIT TO PRACTICE 1001663 | | | |

**ISSUED FOR REVIEW**

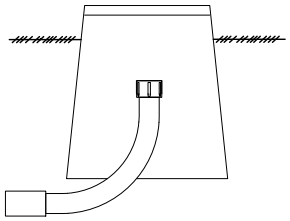
**SEED OR SOD IMMEDIATELY AFTER CONSTRUCTION




# SEEPAGE BED PROFILE

NTS

Refer to Notes for SPM guidelines TABLE II-37 & II-38



END LATERAL 4" PVC SEWER PIPE (CSA) (typ.)
- PVC FEMALE ADAPTOR WITH MALE THREADED CAP
- 4" TEST/FLUSH CAP THRD.
- INSTALL LONG SWEEP FITTING
- MIN.10" ACCESS BOX (INSULATE AS NECESSARY)
- 10" ACCESS BOX MIN. 6" FINISHED GRADE

# TEST / FLUSH CAP DETAILS (TYP.)

NTS - Refer to Notes for SPM guidelines

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K. PODWIN
# 46600

2026-10-15

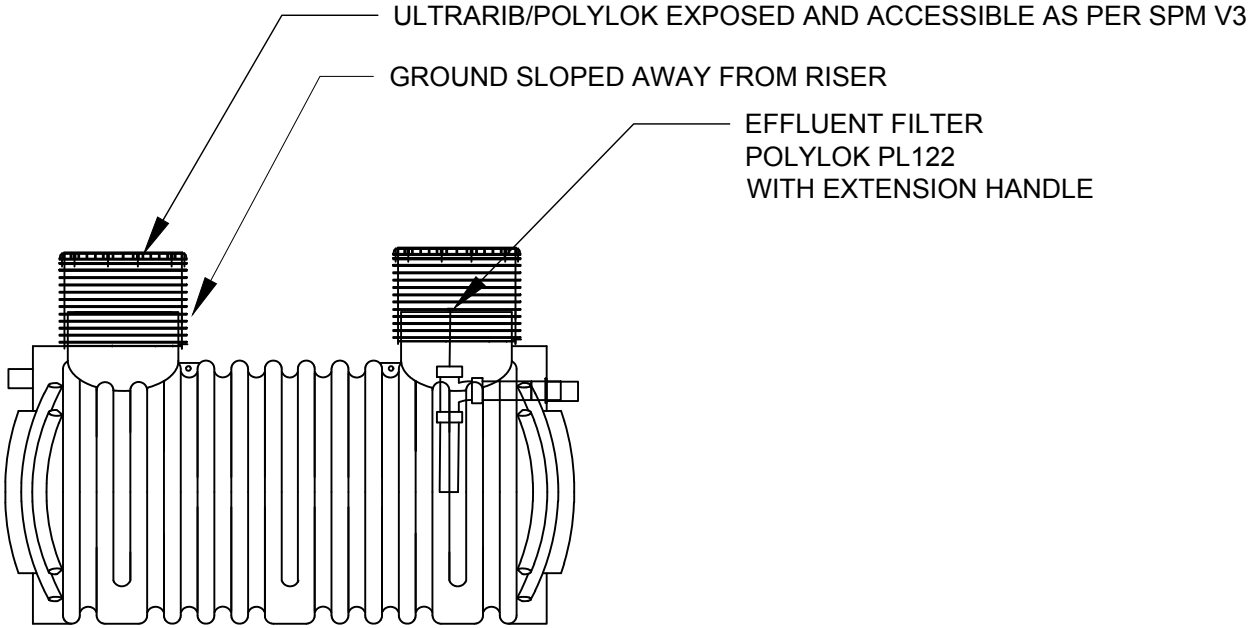
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Engineering. Planning. Design. Project Management.

PROJECT: OOTISCHENIA LANDFILL
671 COLUMBIA ROAD

TITLE: **DISPERSAL FIELD**

| | | | |
|---|---|---|---|
| DESIGN | KP | 09/23/2026 | FILE No. 309-001 |
| CADD | KP | 09/23/2026 | SCALE NTS |
| REVIEW | SP | 09/24/2026 | REV. B |
| PERMIT TO PRACTICE 1001663 | | | |

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RKS 800/2 SEPTIC TANK
CANWEST DUAL CHAMBER
**SCALE HOUSE**
TANK AND EFFLUENT FILTER INSTALLATION AS PER SPMV3
SECTIONS II-6.4/III-6.4 &
CANWEST POLY TANK BURIAL INSTRUCTIONS

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PROVINCE OF BRITISH COLUMBIA
K. PODWIN
# 46600
2026-10-15

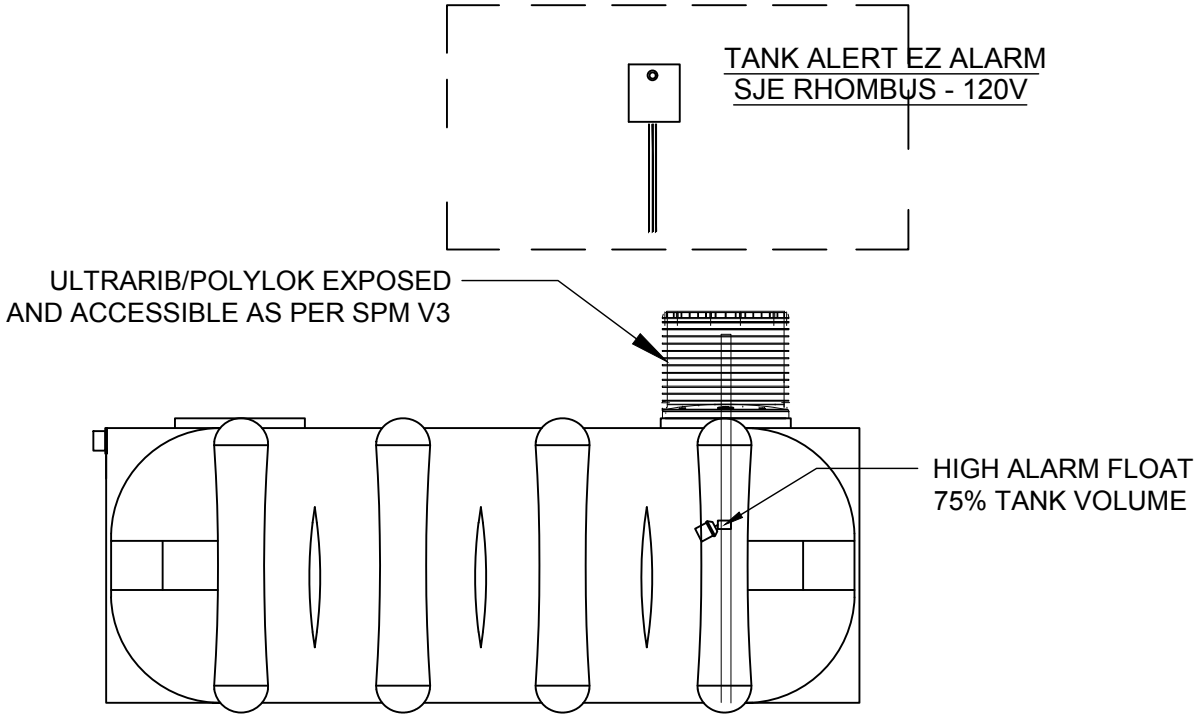
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PROJECT
OOTISCHENIA LANDFILL
671 COLUMBIA ROAD

TITLE
**TANK - SCALE HOUSE**

| | | | |
|---|---|---|---|
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| CADD | KP | 09/23/2026 | SCALE 1 IN = 1 M |
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RKP1550 HOLDING TANK
CANWEST
**ATTENDANTS SHACK**

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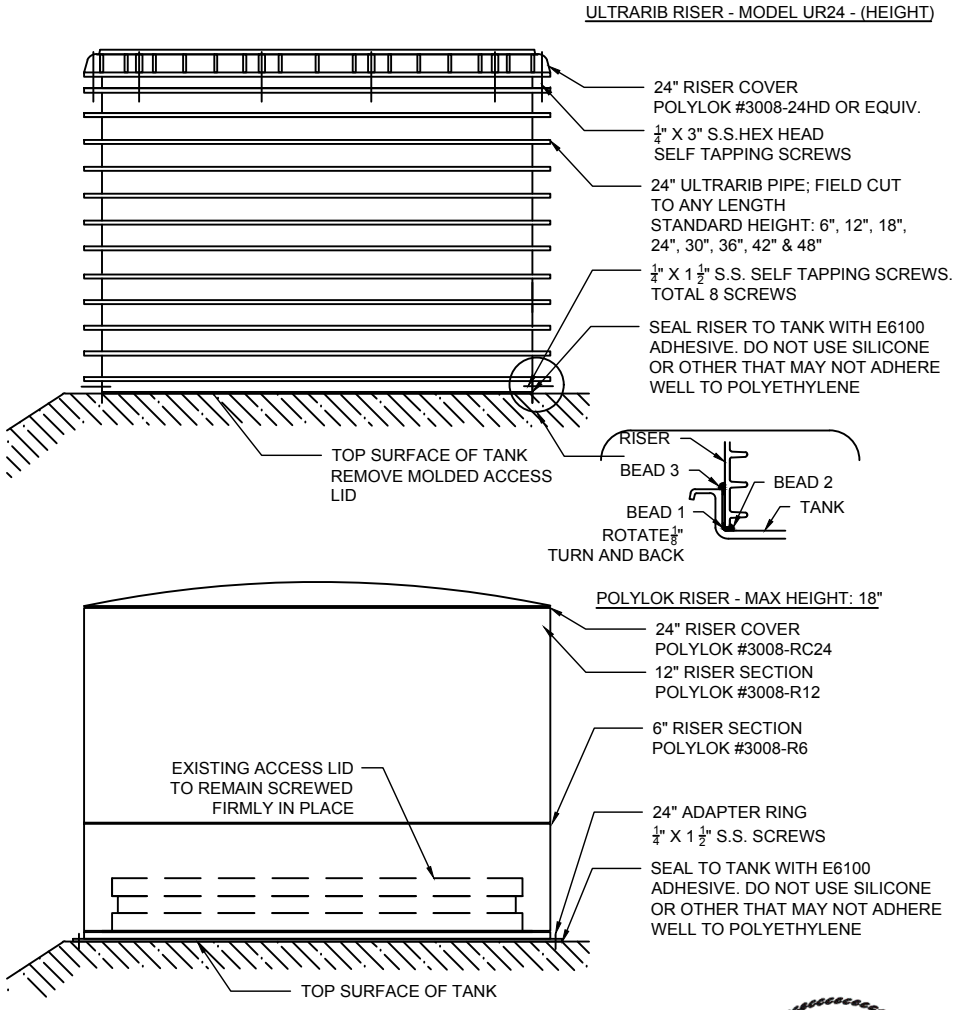
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PROJECT
OOTISCHENIA LANDFILL
671 COLUMBIA ROAD

TITLE
**TANKS - ATTENDANTS SHACK**

| | | | |
|---|---|---|---|
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# TYP. DETAIL - TANK RISER OPTIONS

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PROJECT
OOTISCHENIA LANDFILL
671 COLUMBIA ROAD

TITLE
**RISERS**

| | | | |
|---|---|---|---|
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| CADD | KP | 09/23/2026 | SCALE NTS |
| REVIEW | SP | 09/24/2026 | REV. B |
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ELECTRICAL NOTES:

1. SHALL NOT TERMINATE AT THE ELECTRICAL CONNECTIONS WITHIN A SEPTIC TANK OR PUMP STATION CHAMBER. (THEY MUST BE MADE OUTSIDE CHAMBER AND CONFORM TO ELECTRICAL CODE)
2. ALL ELECTRICAL CONDUITS FROM A PUMP STATION OR SEPTIC TANK SHOULD NOT TERMINATE WITHIN JUNCTION BOX OR CONTROL PANEL. USE ORENCO SPLICE BOX OR SJE RHOMBUS CORD SEAL FOR PUMP CHAMBER CONNECTIONS (HIGH AND LOW VOLTAGE)
3. USE WATER PROOF CORD RESTRAINTS ON BOTTOM OF BOX. ADDITIONAL MECHANICAL PROTECTION MAY BE REQUIRED TO PROTECT EXPOSED CORD.
4. ALL ELECTRICAL INSTALLATIONS AND WIRING SHALL CONFORM TO THE CURRENT BC ELECTRICAL CODE AND STANDARD PRACTICES
5. JUNCTION BOX REQUIREMENT SHALL BE DICTATED BY DISTANCE TO THE CONTROL PANEL MOUNT AND ELECTRICAL CODE STANDARDS.
6. PLUG OPEN CONDUIT ENDS WITH SILICONE OR CONDUIT/CORD SEAL TO PREVENT ODOR ISSUES, VAPOUR ISSUES
7. USE STRAIN RELIEF FITTINGS AS NECESSARY BETWEEN NEMA 4 ENCLOSURES AND CONTROL PANELS IF REQUIRED
8. SURGE PROTECTION REQUIRED ON CONTROL PANEL ELECTRIC SUPPLY DUE TO SENSITIVITY OF LOW VOLTAGE TRANSDUCER




2026-10-15

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PROJECT
OOTISCHENIA LANDFILL
671 COLUMBIA ROAD

TITLE
**ELECTRICAL NOTES - PUMP CHAMBER**

| | | | |
|---|---|---|---|
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| CADD | KP | 09/23/2026 | SCALE NTS |
| REVIEW | SP | 09/24/2026 | REV. B |
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