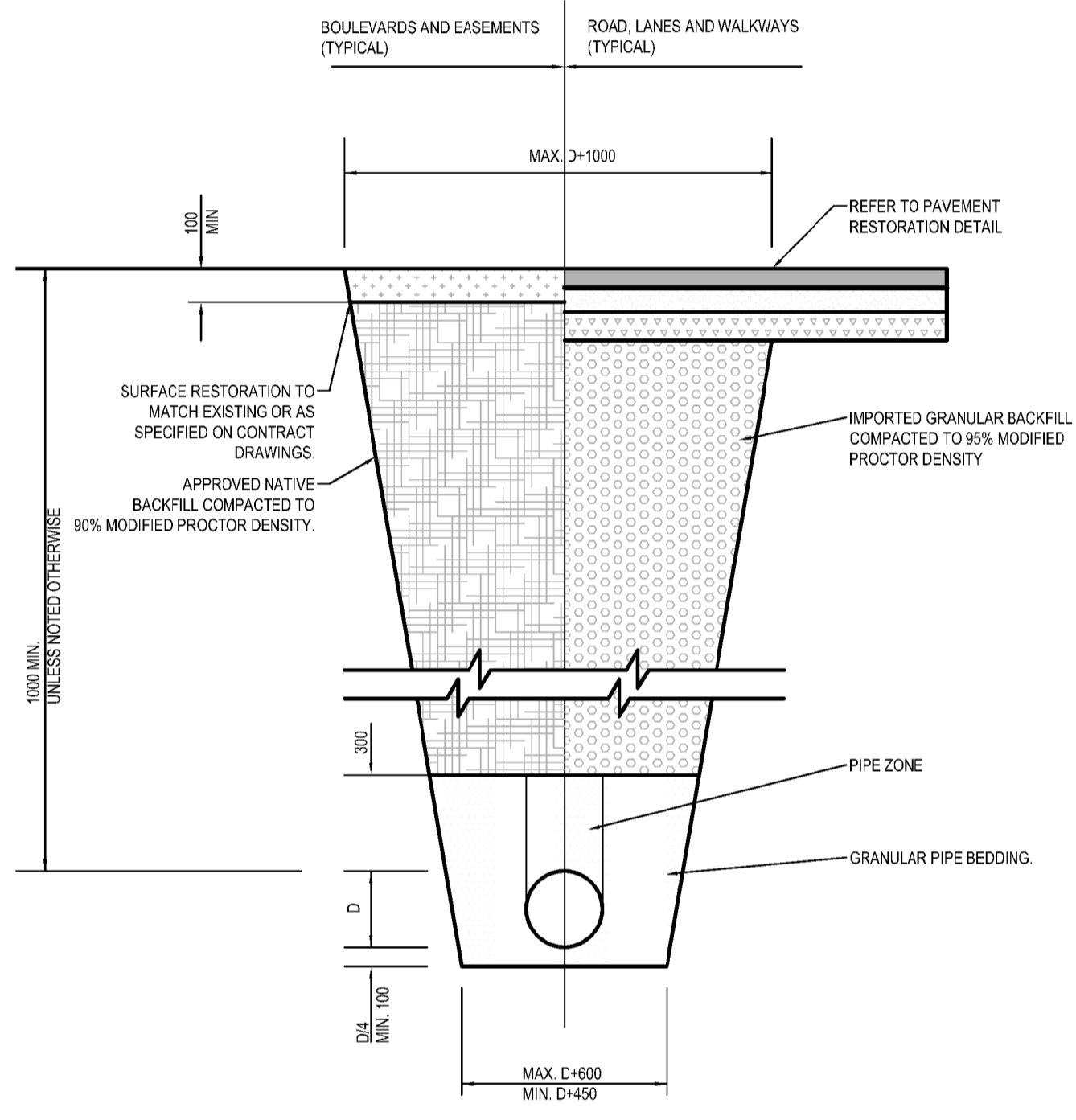
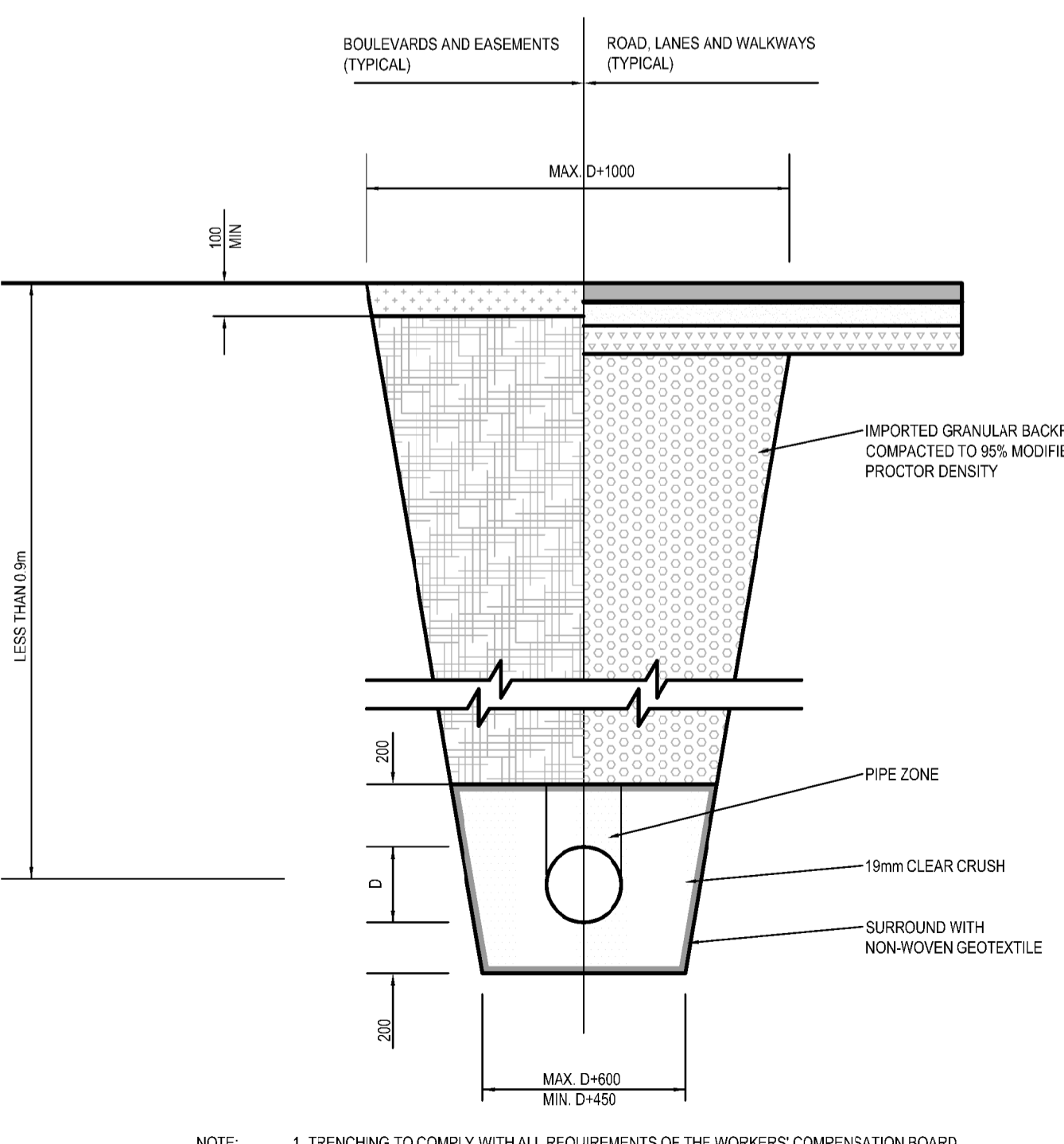


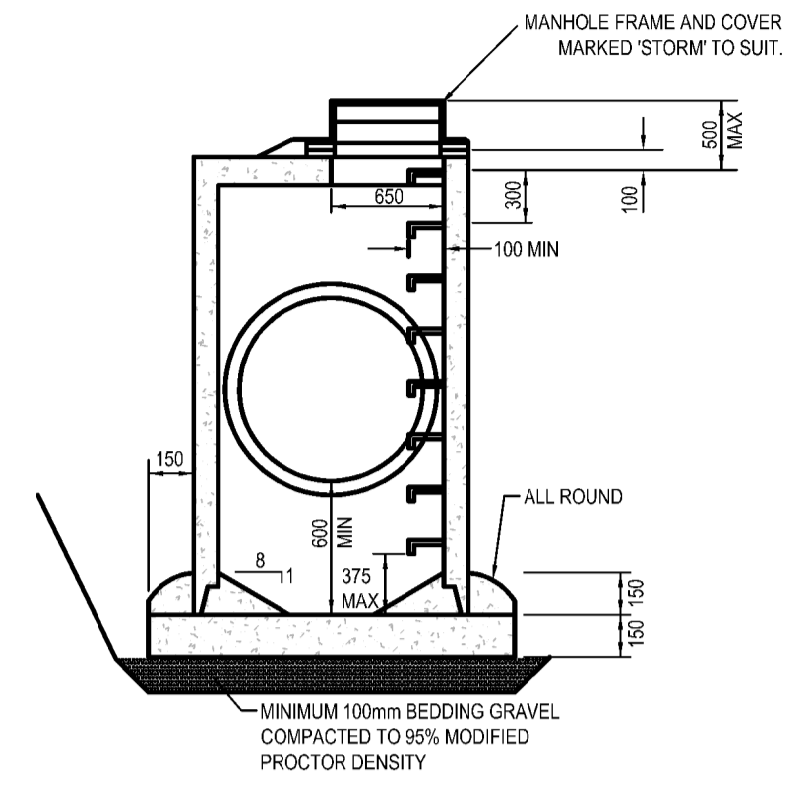
PAVEMENT RESTORATION
SCALE: NTS



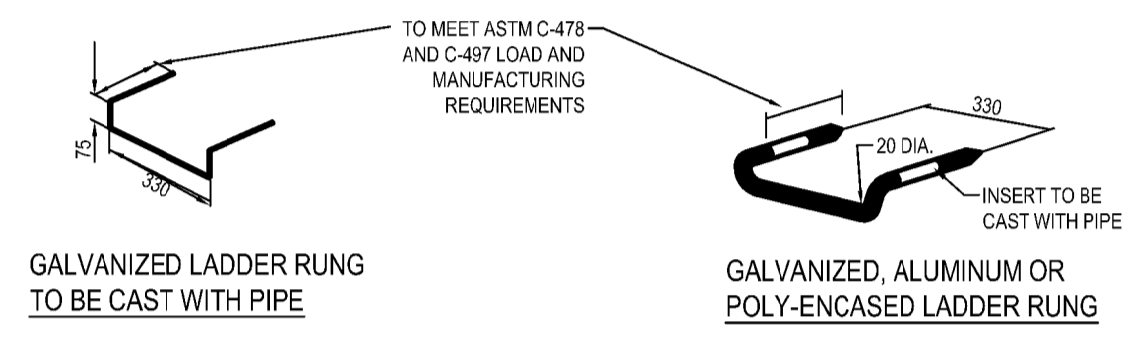
UTILITY TRENCH
SCALE: NTS



SHALLOW UTILITY TRENCH
SCALE: NTS

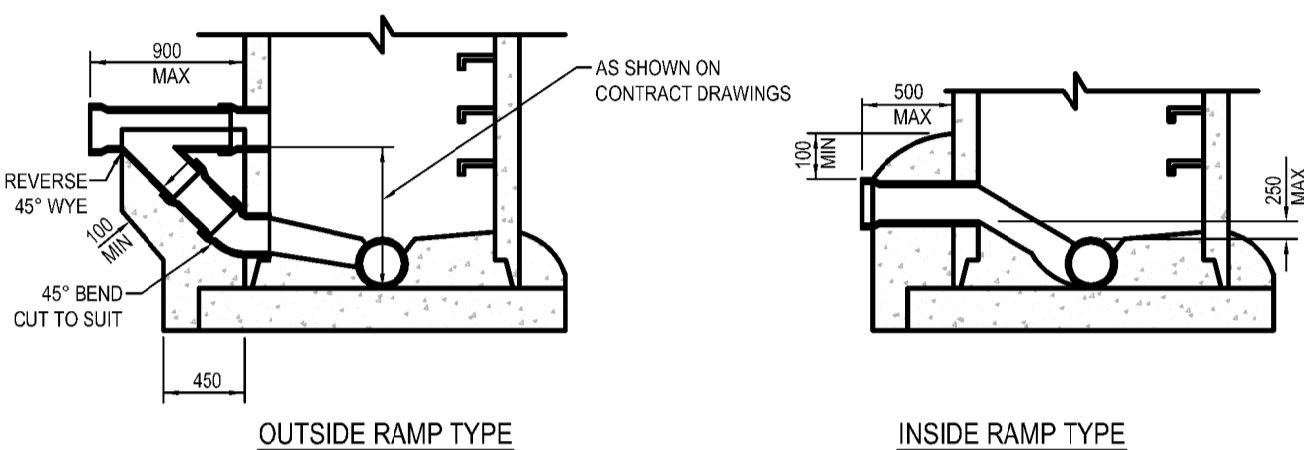
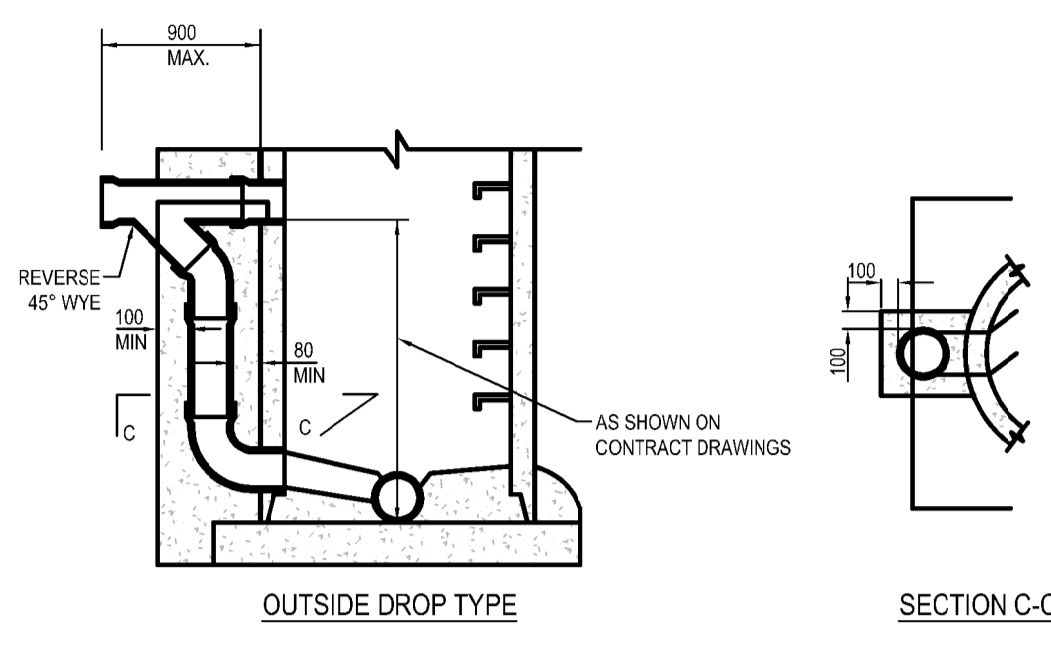


MANHOLE WITH SUMP



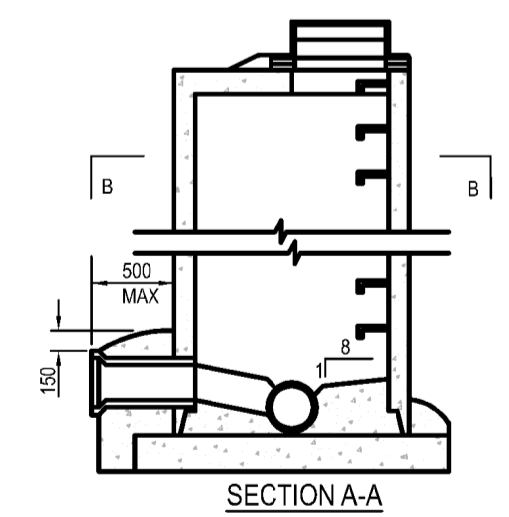
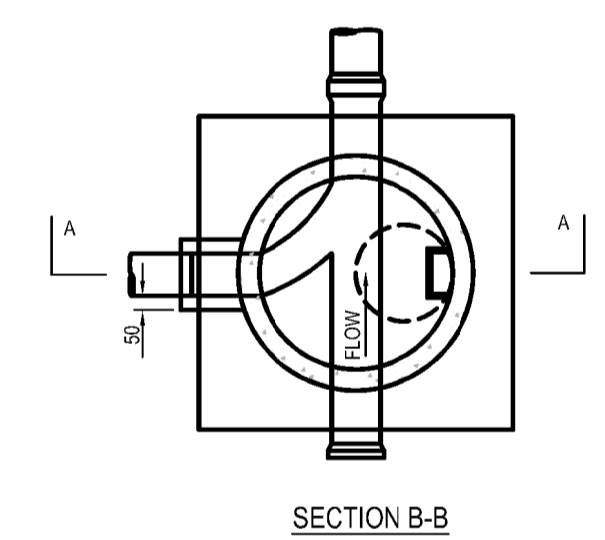
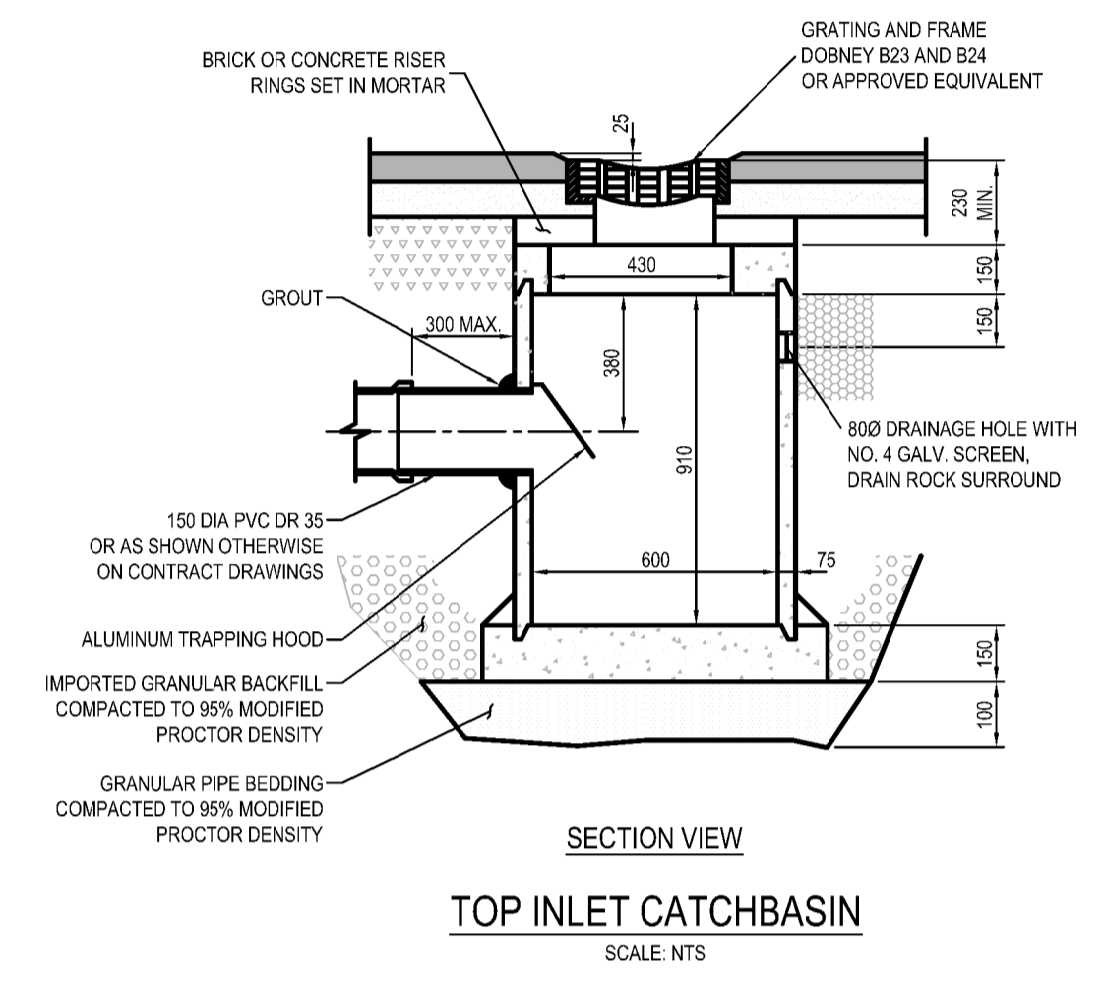
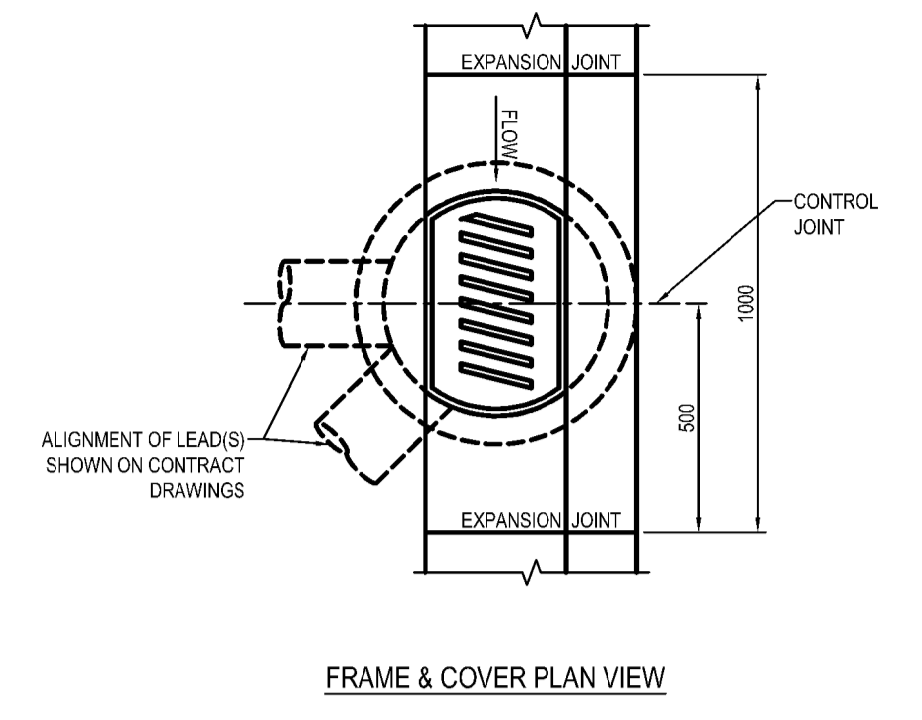
- NOTE:
1. DETAILS ARE DRAWN FOR PRECAST RISERS ON CAST-IN-PLACE BASE. PRECAST BASES APPROVED BY ENGINEER ARE ACCEPTABLE
 2. MAXIMUM DEPTH TO FIRST RUNG IS 500mm. WHEN HAND HOLD IS INSTALLED BETWEEN TOP AND FIRST RUNG, MAXIMUM DEPTH MAY BE INCREASED TO 680mm
 3. FOR MANHOLES OVER 1200mm DIA. BASE THICKNESS TO BE 200mm.
 4. ALL MANHOLES TO BE OCEAN CLASS HD525 OR EQUIVALENT.

STANDARD AND SUMP MANHOLES
SCALE: NTS



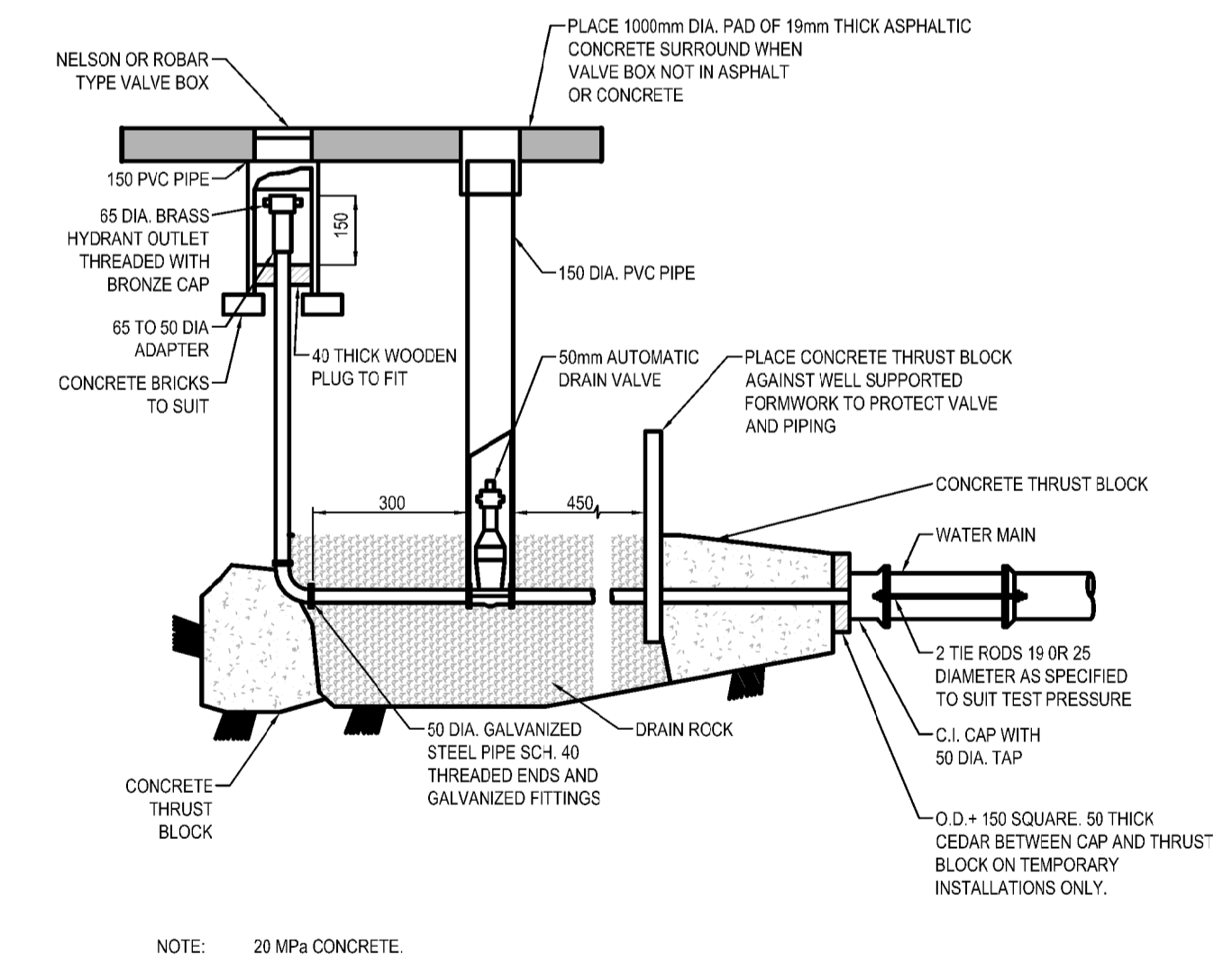
- NOTE:
1. THIS DRAWING SHOWS CONNECTIONS DETAILS ONLINE. REFER TO STANDARD MANHOLE CONNECTION DETAILS FOR ALL OTHER DETAILS PERTAINING TO MANHOLE REQUIREMENTS AND INSTALLATION.
 2. REFER TO CONTRACT DOCUMENTS AND SECTION 33 05 13 FOR DETAILED SPECIFICATIONS.

MANHOLE CONNECTION DETAILS - DROP AND RAMP TYPE
SCALE: NTS

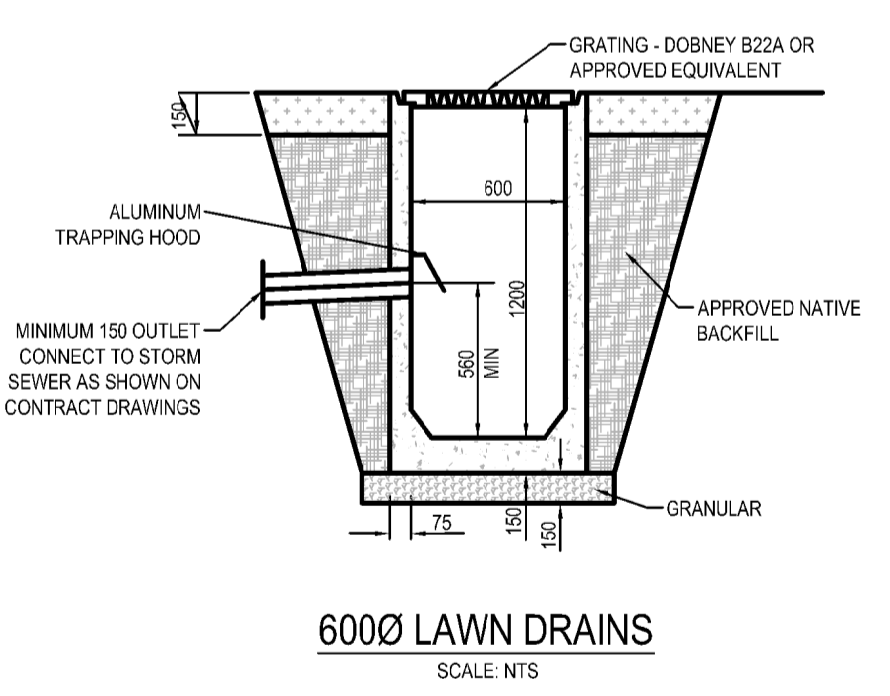


- NOTE:
1. THIS DRAWING SHOWS CONNECTION DETAILS ONLY. REFER TO STANDARD MANHOLE CONNECTION DETAILS FOR ALL OTHER DETAILS PERTAINING TO MANHOLE REQUIREMENTS AND INSTALLATION.
 2. REFER TO CONTRACT DOCUMENTS SECTION 33 05 13 FOR DETAILED SPECIFICATIONS.

STANDARD MANHOLE CONNECTION DETAILS
SCALE: NTS



BLOW-OFF FOR WATERMAIN
SCALE: NTS



No.	DESCRIPTION	BY	DATE
4	RE-ISSUED FOR DP AMENDMENT	DWF	AUG20/18
3	UPDATE PROJECT TITLE FOR DP AMENDMENT	DWF	MAY29/18
2	RE-ISSUED FOR DP AMENDMENT	DWF	MAY11/18
1	ISSUED FOR DP AMENDMENT	DWF	MAY03/18
REVISIONS			

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FRASER GRAIN TERMINAL

NEW GRAIN EXPORT FACILITY
11041 ELEVATOR ROAD, SURREY

Drawn: DWF | Design Checked: SJV | Date: MAR 2018
Designed: DWF | Discipline Review: SJV | Date: MAR 2018

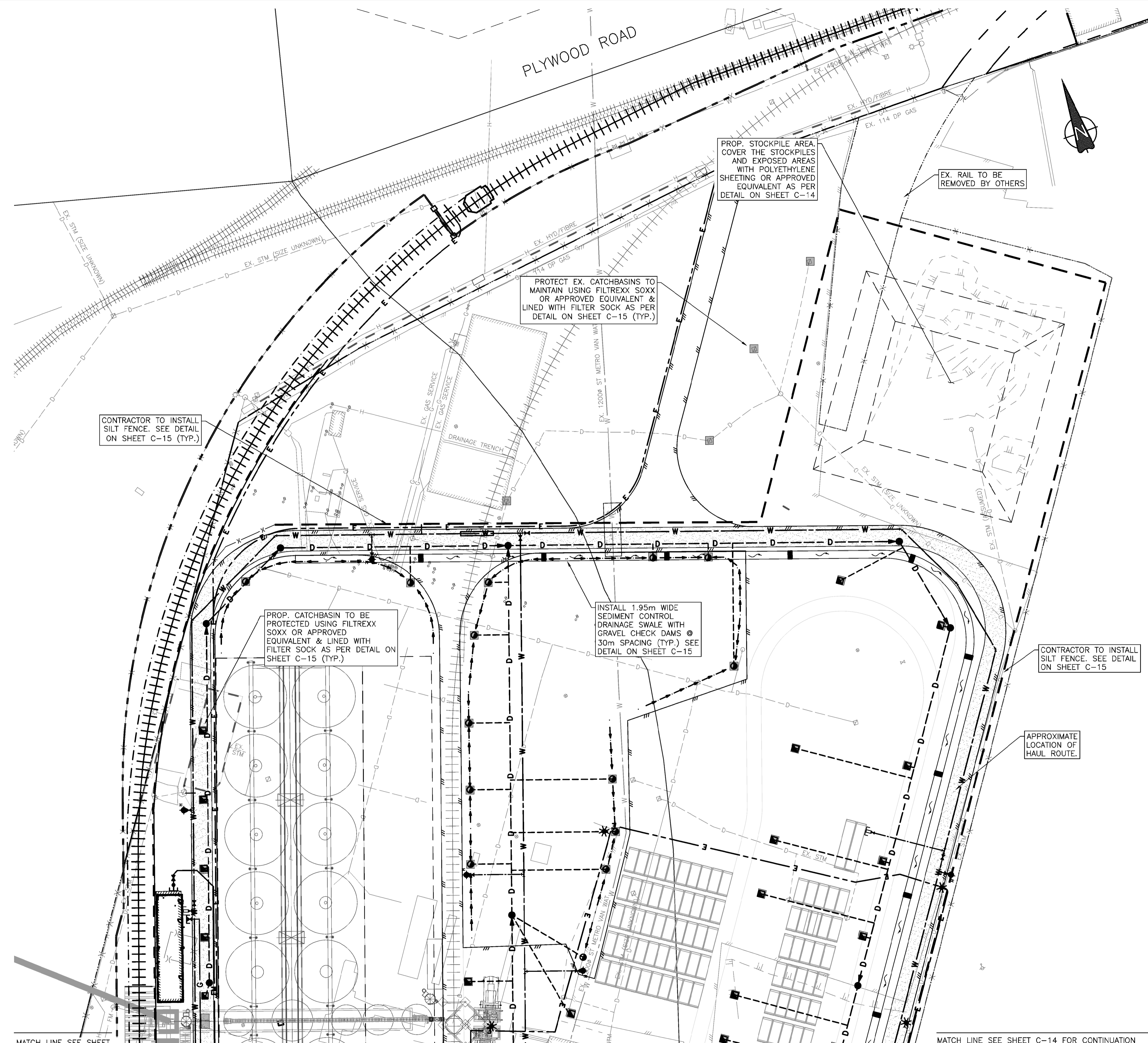
MISCELLANEOUS
DETAILS 1

Drawing No. **32022 C-11**

Sheet No. **13**

P.Eng.

PLYWOOD ROAD



PROP. STOCKPILE AREA COVER THE STOCKPILES AND EXPOSED AREAS WITH POLYETHYLENE SHEETING OR APPROVED EQUIVALENT AS PER DETAIL ON SHEET C-14

EX. RAIL TO BE REMOVED BY OTHERS

PROTECT EX. CATCHBASINS TO MAINTAIN USING FILTREXX SOXX OR APPROVED EQUIVALENT & LINED WITH FILTER SOCK AS PER DETAIL ON SHEET C-15 (TYP.)

CONTRACTOR TO INSTALL SILT FENCE. SEE DETAIL ON SHEET C-15 (TYP.)

PROP. CATCHBASIN TO BE PROTECTED USING FILTREXX SOXX OR APPROVED EQUIVALENT & LINED WITH FILTER SOCK AS PER DETAIL ON SHEET C-15 (TYP.)

INSTALL 1.95m WIDE SEDIMENT CONTROL DRAINAGE SWALE WITH GRAVEL CHECK DAMS @ 30m SPACING (TYP.) SEE DETAIL ON SHEET C-15

CONTRACTOR TO INSTALL SILT FENCE. SEE DETAIL ON SHEET C-15

APPROXIMATE LOCATION OF HAUL ROUTE.

EROSION & SEDIMENT CONTROL (ESC) GENERAL NOTES

1. ALL ONSITE WORKS SHALL BE IN ACCORDANCE WITH THE CURRENT BC BUILDING CODE AND BC PLUMBING CODE.
2. SEDIMENT OR SEDIMENT-LADEN WATERS OR OTHER DELETERIOUS SUBSTANCES SHALL NOT BE PERMITTED TO ENTER THE AQUATIC ENVIRONMENT DURING THE PROPOSED WORKS. ALL WORKS AND ACTIVITIES SHALL BE CARRIED OUT IN A MANNER THAT PREVENTS INDUCED SEDIMENTATION OF FORESHORE AND NEAR SHORE AREAS AND INDUCED TURBIDITY OF LOCAL WATER, AND THE RELEASE OF SEDIMENT, SEDIMENT-LADEN WATERS, AND TURBID WATERS TO THE AQUATIC ENVIRONMENT. ALL WORKS SHALL BE IN COMPLIANCE WITH THE FOLLOWING WATER QUALITY CRITERIA:
 - a. WHEN THE BACKGROUND IS LESS THAN OR EQUAL TO 50 NTU, INDUCED TURBIDITY SHOULD NOT EXCEED 5 NTU ABOVE THE BACKGROUND VALUES.
 - b. WHEN THE BACKGROUND IS GREATER THAN 50 NTU, INDUCED TURBIDITY SHOULD NOT EXCEED THE BACKGROUND VALUES BY MORE THAN 10% OF THE BACKGROUND VALUES.
3. PH LEVEL OF WATER DISCHARGING FROM THE SITE SHALL BE WITHIN THE RANGE OF 6 TO 8.5. RUNOFF OUTSIDE THIS RANGE MUST BE NEUTRALIZED PRIOR TO DISCHARGE. PH CAN BE NEUTRALIZED WITH COMPRESSED CO2 GAS DELIVERED VIA DIFFUSER.
4. ALL WORK SHALL BE UNDERTAKEN AND COMPLETED IN SUCH A MANNER AS TO PREVENT THE RELEASE OF SEDIMENT, SILT OR SEDIMENT LADEN WATER, CONCRETE OR CONCRETE LEACHATE OR ANY OTHER DELETERIOUS SUBSTANCES INTO ANY DITCH, CATCHBASIN OR WATERBODY. EROSION & SEDIMENT CONTROL (ESC) FACILITIES MUST BE COMPLETED BEFORE WORK COMMENCES.
5. THE CONTRACTOR SHALL KEEP ALL PORTIONS OF THE WORK DRAINED DURING THE CONSTRUCTION AND UNTIL COMPLETION. WHERE NECESSARY, CATCHWATER SWALES SHALL BE CONSTRUCTED ALONG THE TOPS OF EXCAVATIONS OR FILL SLOPES TO PREVENT WATER FLOWING INTO OR OVER THE EXCAVATED OR FILLED AREAS. THE CONTRACTOR WILL BE RESPONSIBLE FOR THE REPAIR FOR THE DAMAGE DIRECTLY RESULTING FROM HIS OPERATIONS AND FOR THE REMOVAL OF DIRT OR DEBRIS FROM EXISTING SYSTEMS, WHICH MAY BE CAUSED BY OR WHICH MAY RESULT FROM WATER BACKING UP OR OVERFLOWING THROUGH, FROM, OR ALONG ANY PART OF THE WORK OR ADJACENT PROPERTIES. THE CONTRACTOR SHALL BEAR ALL COSTS ASSOCIATED WITH THESE REPAIRS UNTIL WORKS IS COMPLETE AND ACCEPTED BY THE OWNER(S).
6. THE CONTRACTOR SHALL CONSTRUCT AND MAINTAIN ALL ESC FACILITIES IN ACCORDANCE WITH THE REQUIREMENTS OF FEDERAL DEPARTMENTS OF FISHERIES AND OCEANS, ENVIRONMENT CANADA, THE PROVINCIAL MINISTRY OF ENVIRONMENT AND PROJECT DEVELOPMENT PERMITS.
7. THE WORKS SHOWN SHALL BE A MINIMUM REQUIREMENT. THE CONTRACTOR SHALL MODIFY AND/OR PROVIDE ADDITIONAL ESC CONTROL MEASURES AS NECESSARY TO ACCOMMODATE CONSTRUCTION ACTIVITIES AND SATISFY THE REQUIREMENTS OF THE REGULATORY AGENCIES AND SITE ENVIRONMENTAL MONITOR.
8. THE CONTRACTOR SHALL MAINTAIN ALL ESC FACILITIES ON AN AS-NEEDED BASIS. MAINTENANCE MAY INCLUDE BUT IS NOT NECESSARILY LIMITED TO SERVICING THE PORTABLE STORMWATER TREATMENT UNITS, ADDING FLOCCULENTS, REPLACING SILT FENCE, RE-STAKING FALLEN SILT FENCE, DISPOSAL OFFSITE OF DEBRIS AND SEDIMENT, REPLACING FOULED GRAVEL, AND CLEAN OUT OF SWALES.
9. CONTRACTOR TO RETAIN AN ENVIRONMENTAL MONITOR WHO SHALL MONITOR THE ONGOING WORK, DRAINAGE AND ESC AND PROVIDE WEEKLY REPORTS TO THE OWNER AND ANY OTHER AGENCY AS PRESCRIBED BY PERMITS AND APPROACH.
10. ALL CONCRETE SUPPLY TRUCKS SHALL BE EQUIPPED WITH WASH BUCKET SYSTEM FOR FLUSHING OF FLUME. ALL WASTE WATER FROM FLUSHING OF FLUME TO BE RE-CIRCULATED INTO MIXING DRUM. UNDER NO CIRCUMSTANCES, SHALL EXCESS CONCRETE FROM FLUME AND/OR TRUCK BE FLUSHED ONTO ROADS OR INTO STORM SEWERS.
11. CONTRACTOR TO PROVIDE AN APPROPRIATE SIZED SPILL KIT ONSITE DURING ALL PHASES OF CONSTRUCTION.
12. DUST NUISANCE WILL BE REDUCED BY USE OF WATER SPRAYED ON THE EXPOSED SOURCE OF THE DUST. FREQUENCY OF THE SUPPRESSION WILL BE AS REQUIRED BY THE ENGINEER OR PORT METRO VANCOUVER.
13. LICENSED VEHICLES ACCESSING SITE SHALL BE RESTRICTED TO EXISTING ASPHALT SURFACE (CLEAR OF SOILS AND SEDIMENT) ONLY.
14. EXPOSED SLOPES, TEMPORARY, AND SPOILED STOCKPILES TO BE COVERED WITH ONE LAYER OF 5mil POLY AND WEIGHTED OR STAPLED INTO PLACE. SILT FENCES OR OTHER ESC DEVICES TO SURROUND TEMPORARY OR SPOILED MATERIAL STOCKPILES.

MATCH LINE SEE SHEET C-14 FOR CONTINUATION

MATCH LINE SEE SHEET C-14 FOR CONTINUATION

No.	DESCRIPTION	BY	DATE
4	RE-ISSUED FOR DP AMENDMENT	DWF	AUG20/18
3	UPDATE PROJECT TITLE FOR DP AMENDMENT	DWF	MAY29/18
2	RE-ISSUED FOR DP AMENDMENT	DWF	MAY11/18
1	ISSUED FOR DP AMENDMENT	DWF	MAY03/18
REVISIONS			

P.Eng.

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Scale
1:500

FRASER GRAIN TERMINAL
NEW GRAIN EXPORT FACILITY
 11041 ELEVATOR ROAD, SURREY

Drawn: DWF Design Checked: **SJV** Date: **MAR 2018**
 Designed: DWF Discipline Review: **SJV** Date: **MAR 2018**

NORTH
EROSION & SEDIMENT
CONTROL PLAN

Drawing No.

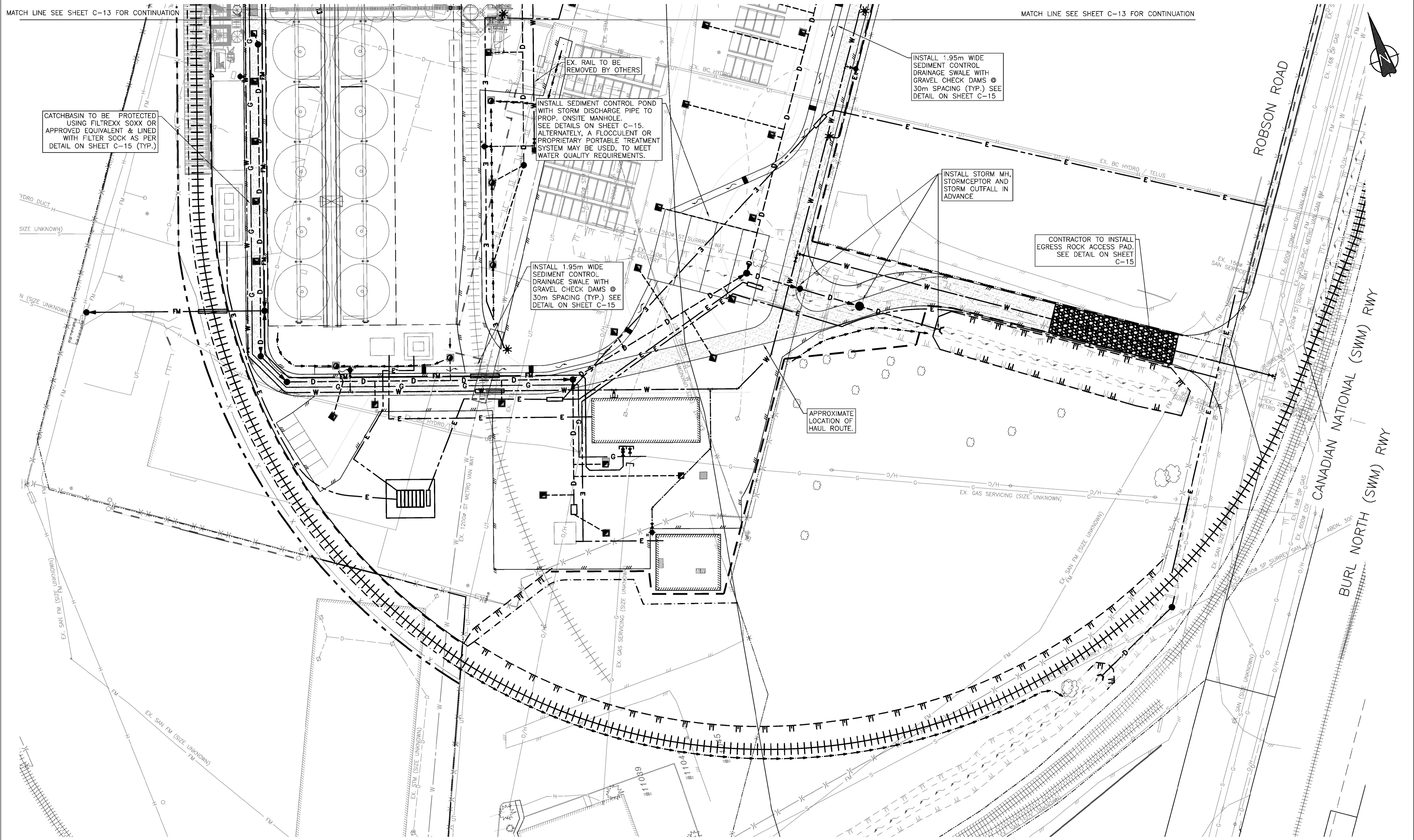
32022
C-13

Sheet No.

15

MATCH LINE SEE SHEET C-13 FOR CONTINUATION

MATCH LINE SEE SHEET C-13 FOR CONTINUATION



CATCHBASIN TO BE PROTECTED USING FILTREXX SOXX OR APPROVED EQUIVALENT & LINED WITH FILTER SOCK AS PER DETAIL ON SHEET C-15 (TYP.)

EX. RAIL TO BE REMOVED BY OTHERS

INSTALL SEDIMENT CONTROL POND WITH STORM DISCHARGE PIPE TO PROP. ONSITE MANHOLE. SEE DETAILS ON SHEET C-15. ALTERNATIVELY, A FLOCCULENT OR PROPRIETARY PORTABLE TREATMENT SYSTEM MAY BE USED, TO MEET WATER QUALITY REQUIREMENTS.

INSTALL 1.95m WIDE SEDIMENT CONTROL DRAINAGE SWALE WITH GRAVEL CHECK DAMS @ 30m SPACING (TYP.) SEE DETAIL ON SHEET C-15

INSTALL 1.95m WIDE SEDIMENT CONTROL DRAINAGE SWALE WITH GRAVEL CHECK DAMS @ 30m SPACING (TYP.) SEE DETAIL ON SHEET C-15

INSTALL STORM MH, STORMCEPTOR AND STORM OUTFALL IN ADVANCE

CONTRACTOR TO INSTALL EGRESS ROCK ACCESS PAD. SEE DETAIL ON SHEET C-15

APPROXIMATE LOCATION OF HAUL ROUTE.

No.	DESCRIPTION	BY	DATE
4	RE-ISSUED FOR DP AMENDMENT	DWF	AUG20/18
3	UPDATE PROJECT TITLE FOR DP AMENDMENT	DWF	MAY29/18
2	RE-ISSUED FOR DP AMENDMENT	DWF	MAY11/18
1	ISSUED FOR DP AMENDMENT	DWF	MAY03/18

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FRASER GRAIN TERMINAL
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Drawn: DWF Design Checked: SJV Date: MAR 2018
Designed: DWF Discipline Review: SJV Date: MAR 2018

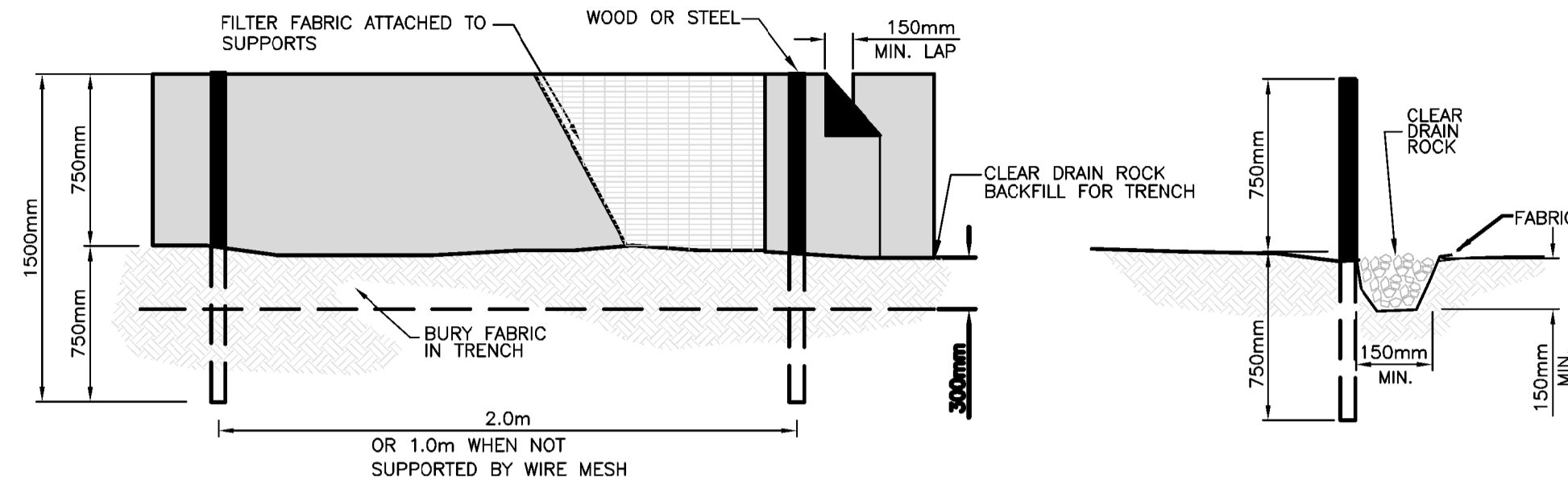
SOUTH
EROSION & SEDIMENT
CONTROL PLAN

Drawing No.

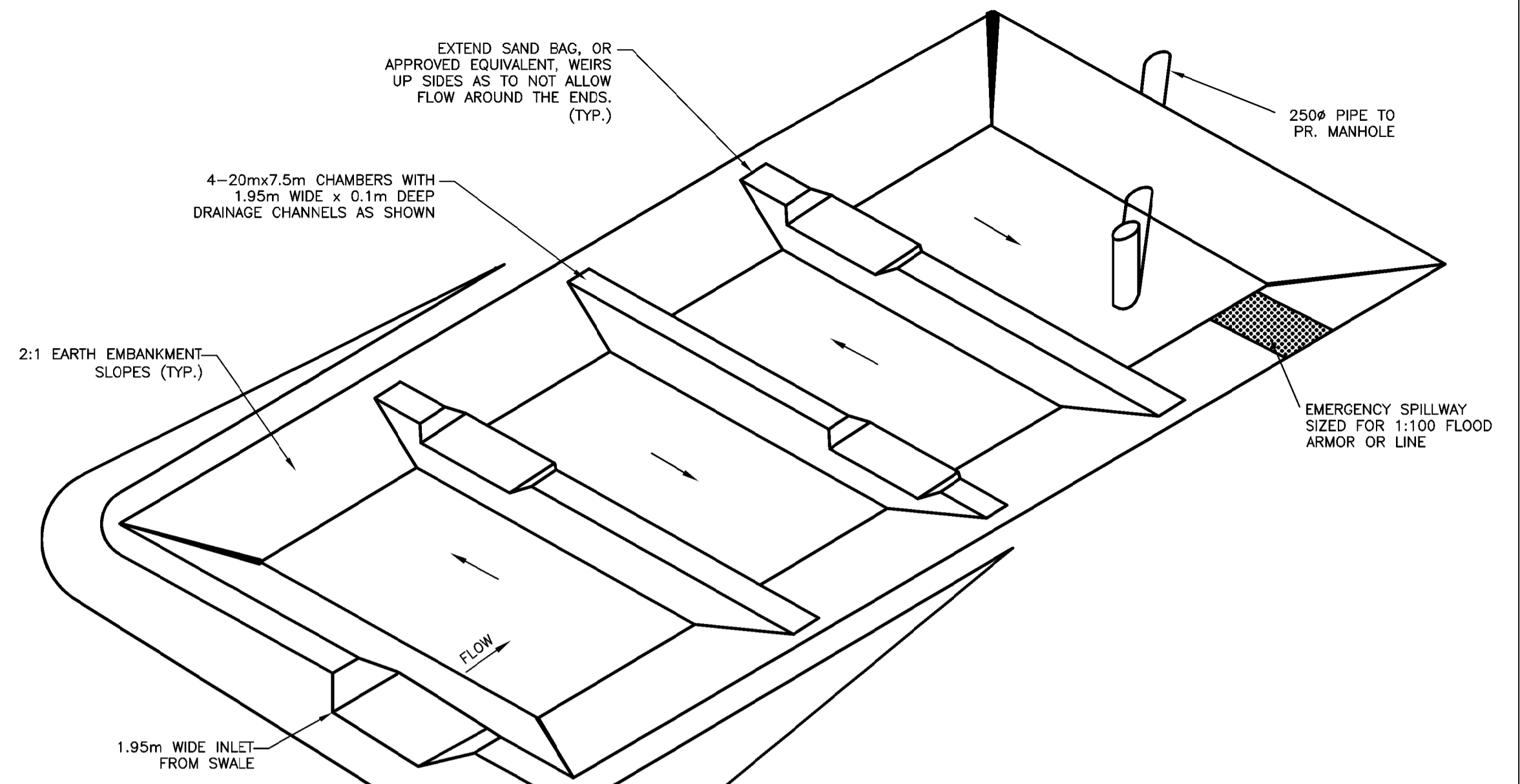
32022
C-14

Sheet No.

16

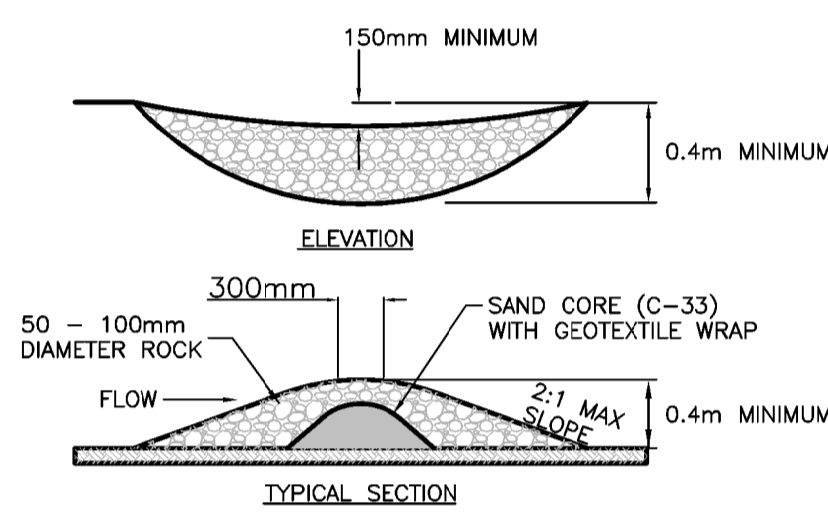


SILT FENCE DETAIL
SCALE: NTS

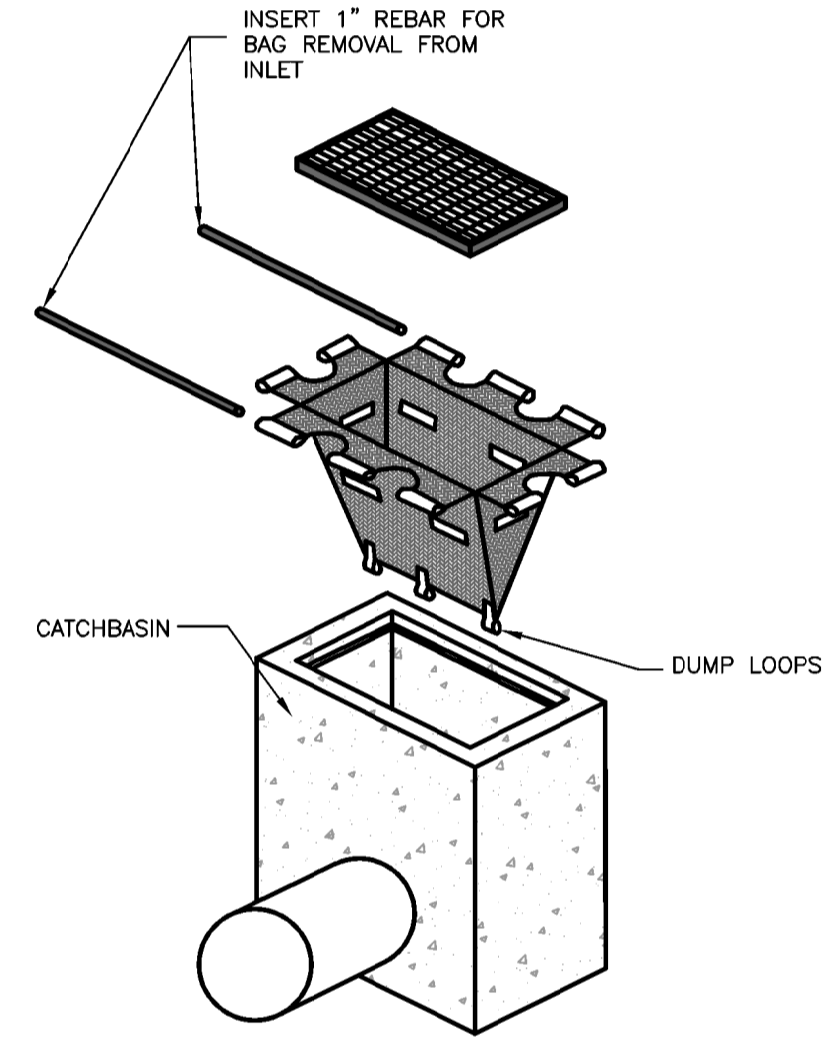


- MAINTENANCE:**
1. REPAIR/REPLACE BAFFLES WHEN THEY COLLAPSE, TEAR OR DECOMPOSE.
 2. REMOVE SEDIMENT WHEN CELL IS HALF FULL.

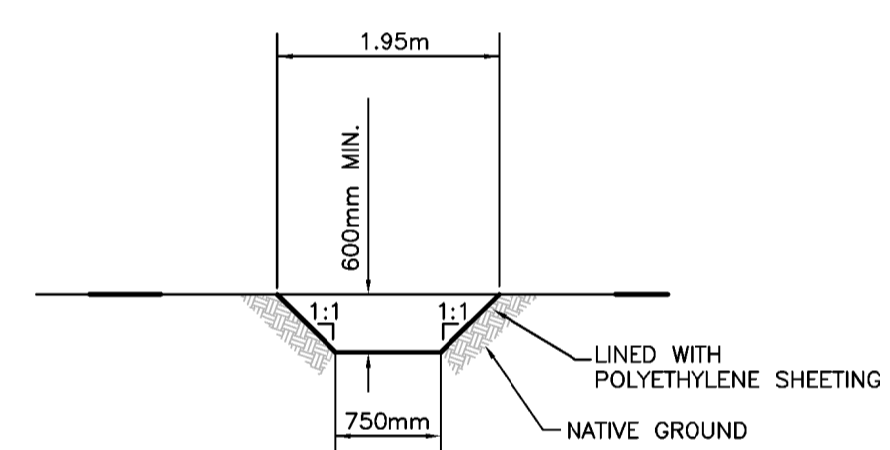
PERSPECTIVE VIEW
SEDIMENT CONTROL POND DETAIL
SCALE: NTS



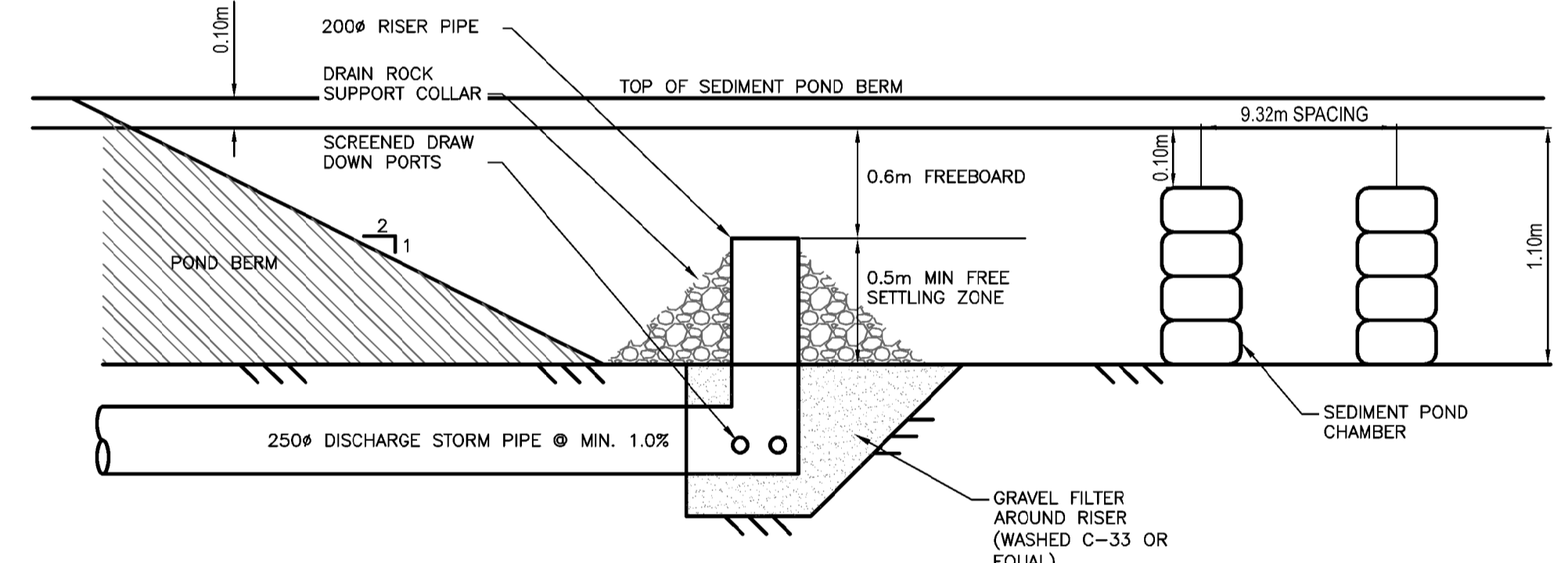
SEDIMENT CONTROL CHECK DAM
SCALE: NTS



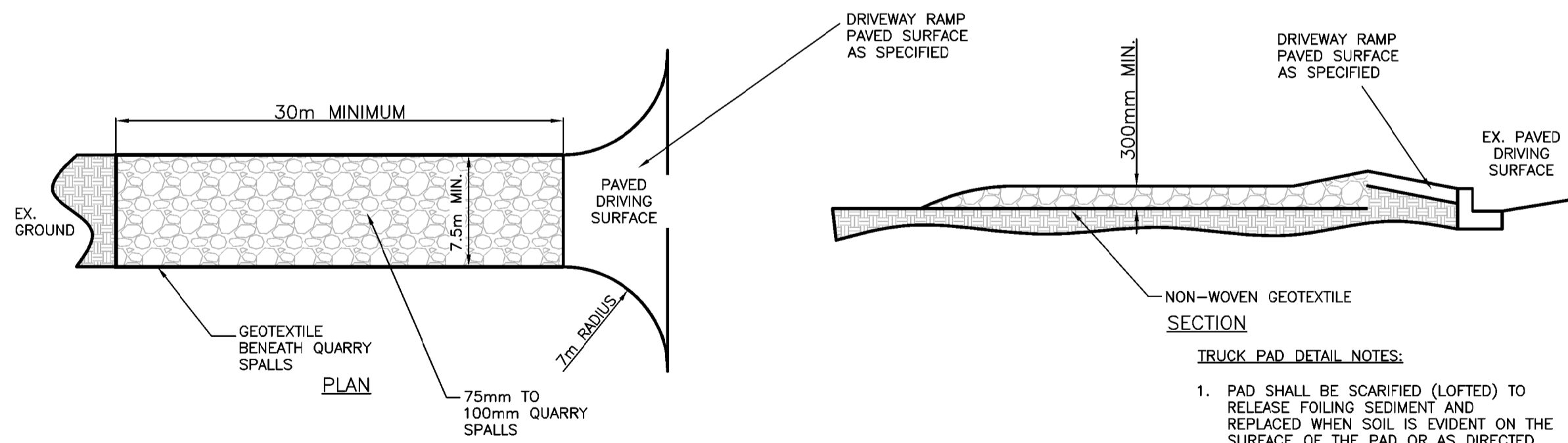
FILTER SOCK DETAIL
SCALE: NTS



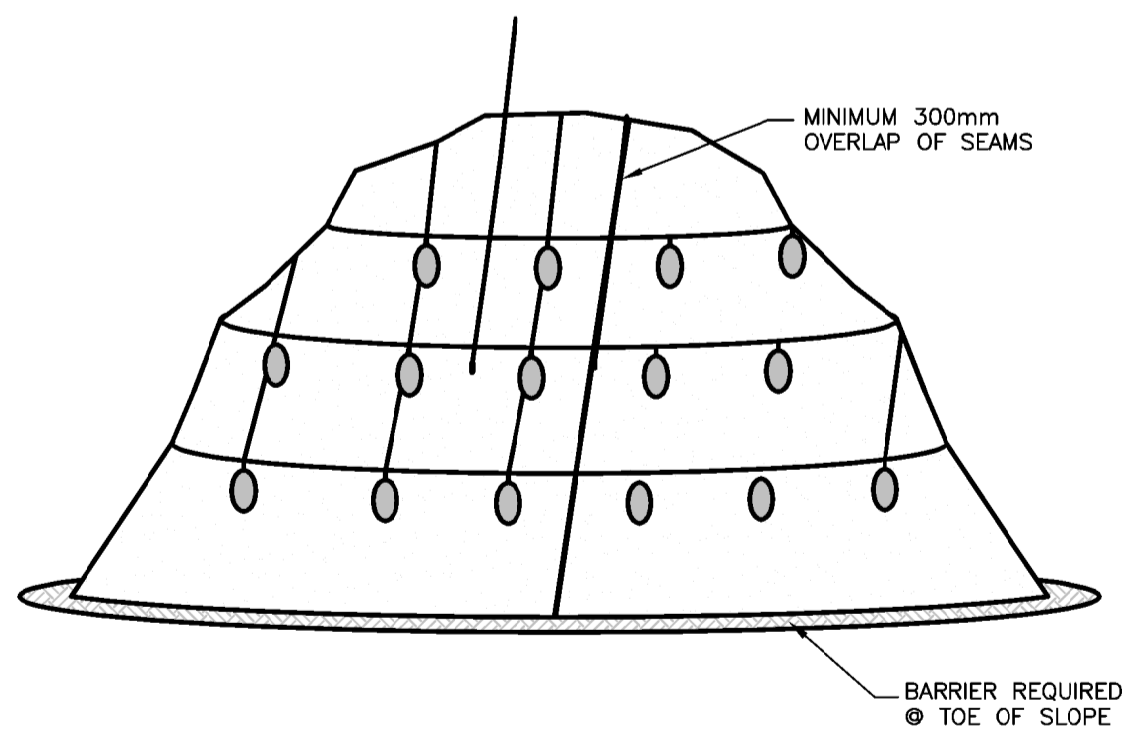
TYPICAL CONSTRUCTION
SEDIMENT SWALE SECTION
SCALE: NTS



SECTION VIEW
SEDIMENT POND SECTION DETAIL
SCALE: NTS



TEMPORARY TRUCK EGRESS PAD DETAIL
SCALE: NTS



- NOTES:**
1. MINIMUM 300mm OVERLAP OF ALL SEAMS REQUIRED.
 2. BARRIER REQUIRED @ TOE OF STOCK PILE.
 3. COVERING MAINTAINED TIGHTLY IN PLACE BY USING SANDBAGS OR TIRES ON ROPES WITH A MAXIMUM 3.0m GRID SPACING IN ALL DIRECTIONS.

PLASTIC SHEETING DETAIL
SCALE: NTS

No.	DESCRIPTION	BY	DATE
4	RE-ISSUED FOR DP AMENDMENT	DWF	AUG20/18
3	UPDATE PROJECT TITLE FOR DP AMENDMENT	DWF	MAY29/18
2	RE-ISSUED FOR DP AMENDMENT	DWF	MAY11/18
1	ISSUED FOR DP AMENDMENT	DWF	MAY03/18
REVISIONS			

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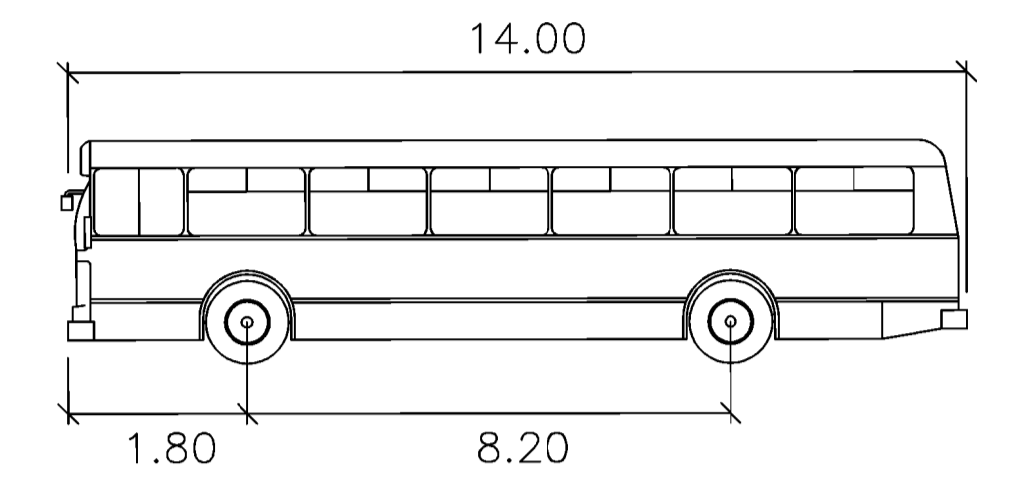
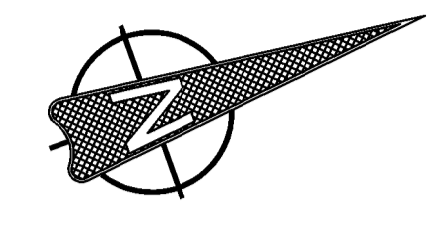
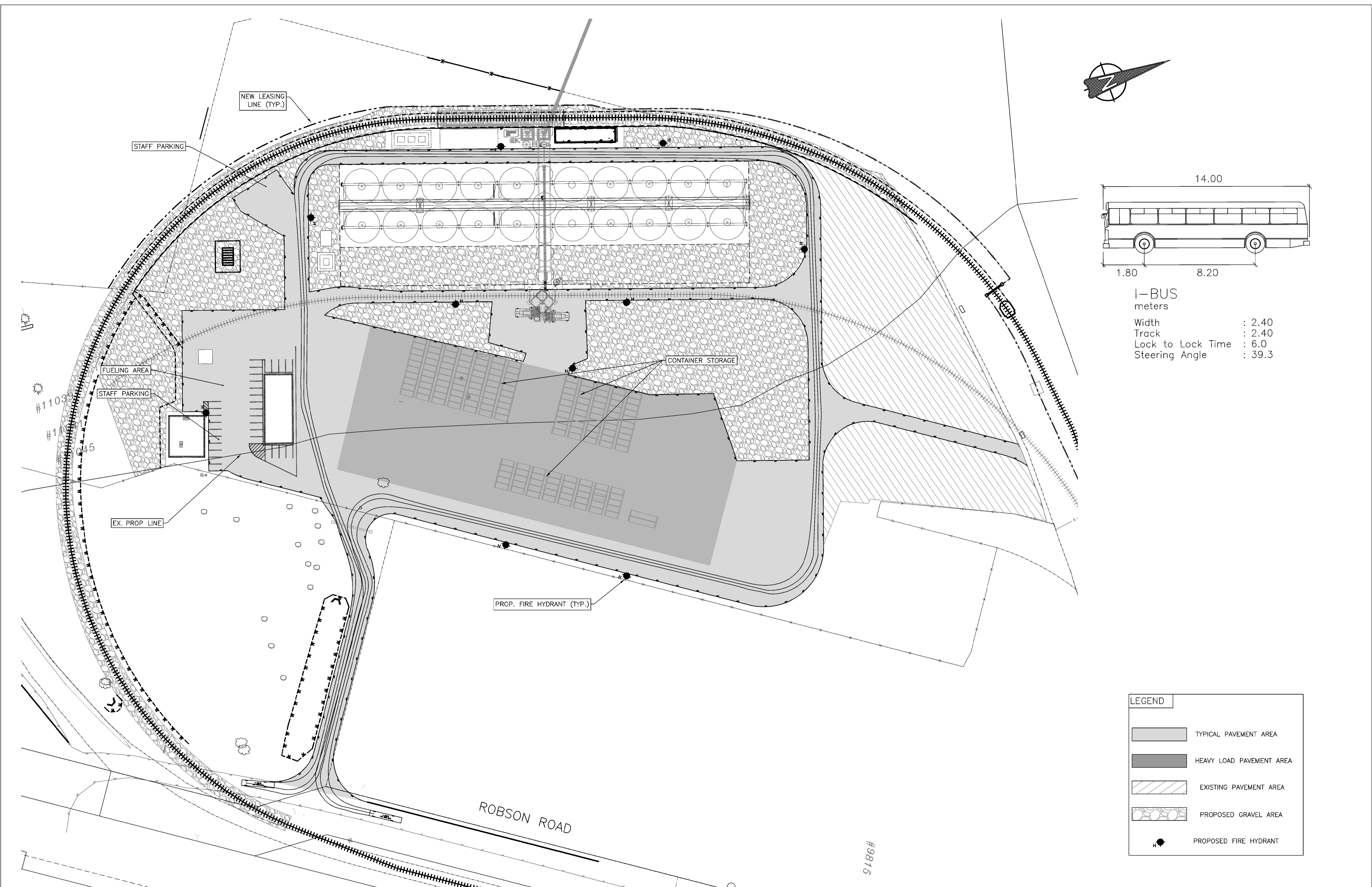
Scale
1: 500

FRASER GRAIN TERMINAL
NEW GRAIN EXPORT FACILITY
11041 ELEVATOR ROAD, SURREY

Drawn: DWF Design Checked: **SJV** Date: **MAR 2018**
Designed: DWF Discipline Review: **SJV** Date: **MAR 2018**

ESC DETAILS

Drawing No.
32022
C-15
Sheet No.
17



I-BUS
meters

Width : 2.40
Track : 2.40
Lock to Lock Time : 6.0
Steering Angle : 39.3

LEGEND	
	TYPICAL PAVEMENT AREA
	HEAVY LOAD PAVEMENT AREA
	EXISTING PAVEMENT AREA
	PROPOSED GRAVEL AREA
	PROPOSED FIRE HYDRANT

No.	DESCRIPTION	BY	DATE
6	RE-ISSUED FOR DP AMENDMENT	DWF	AUG20/18
5	UPDATE PROJECT TITLE FOR DP AMENDMENT	DWF	MAY29/18
4	NEW LEGEND ADDED FOR DP AMENDMENT	DWF	MAY14/18
3	RE-ISSUED FOR DP AMENDMENT	DWF	MAY11/18
2	ISSUED FOR DP AMENDMENT	DWF	MAY03/18
1	REVISED CONCEPT DESIGN	DWF	APR17/18

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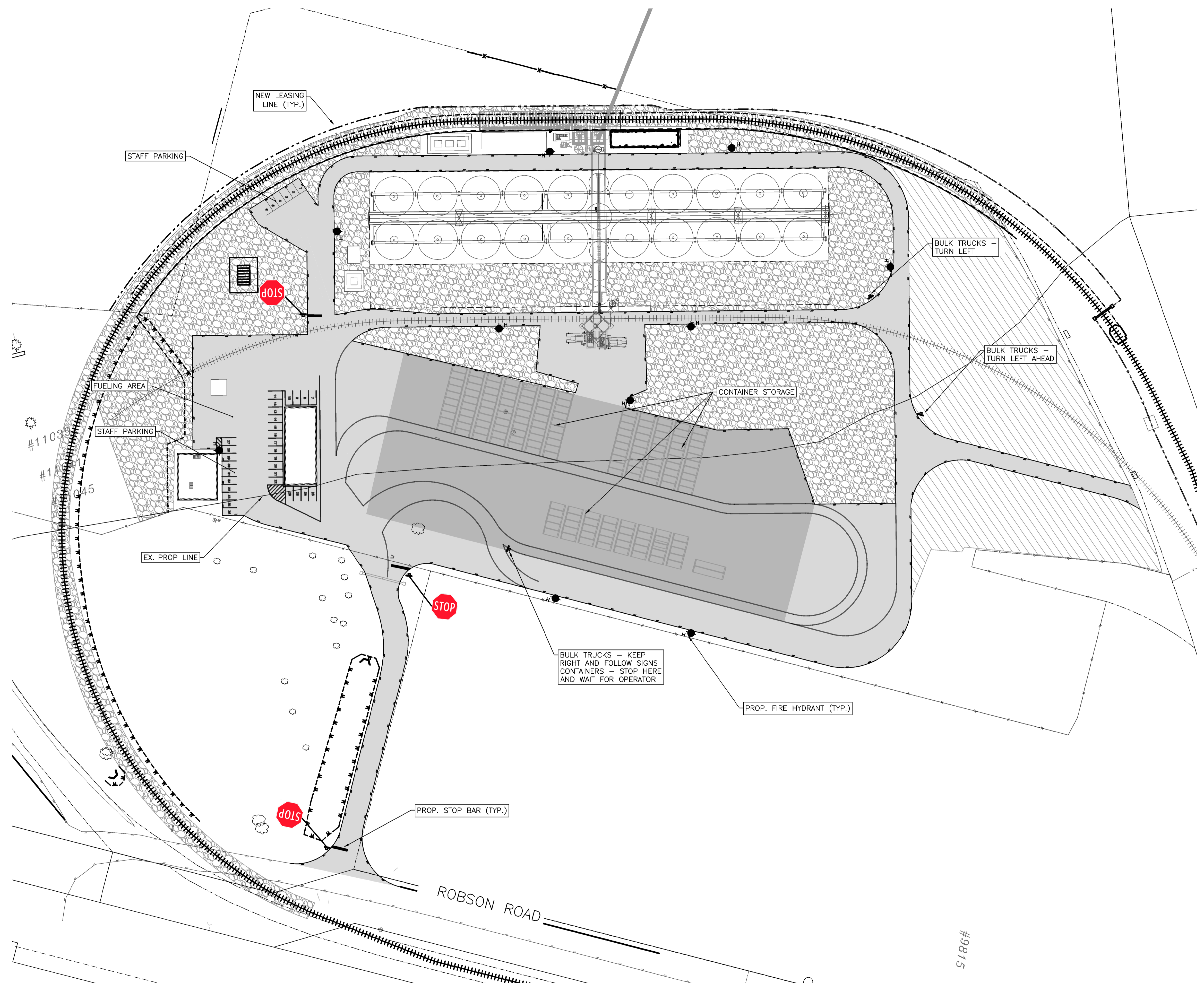
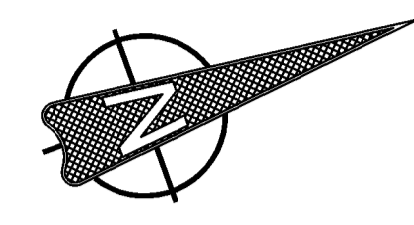
Scale
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FRASER GRAIN TERMINAL
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 11041 ELEVATOR ROAD, SURREY

Drawn: DWF Design Checked: **SJV** Date: **MAR 2018**
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**EMERGENCY
 ACCESS
 ROUTING**

Drawing No.
**32022
 C-16**
 Sheet No.
18



LEGEND	
	TYPICAL PAVEMENT AREA
	HEAVY LOAD PAVEMENT AREA
	EXISTING PAVEMENT AREA
	PROPOSED GRAVEL AREA
	PROPOSED FIRE HYDRANT

No.	DESCRIPTION	BY	DATE
6	RE-ISSUED FOR DP AMENDMENT	DWF	AUG20/18
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4	NEW LEGEND ADDED FOR DP AMENDMENT	DWF	MAY14/18
3	RE-ISSUED FOR DP AMENDMENT	DWF	MAY11/18
2	ISSUED FOR DP AMENDMENT	DWF	MAY03/18
1	REVISED CONCEPT DESIGN	DWF	APR17/18

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FRASER GRAIN TERMINAL
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SIGNAGE AND PAVEMENT MARKING PLAN

Scale
1: 750

Drawn: DWF Design Checked: **SJV** Date: **MAR 2018**
 Designed: DWF Discipline Review: **SJV** Date: **MAR 2018**

Drawing No.
32022 C-17
 Sheet No.
19

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