LOYALIST TOWNSHIP

ODESSA WEST DRAINAGE IMPROVEMENTS PROJECT

PROJECT DESCRIPTION

ROAD RECONSTRUCTION, INCLUDING DRAINAGE AND WATERMAIN INFRASTRUCTURE, BRIDGE STREET, BATTERY STREET, CROSS STREET, SOUTH STREET EAST AND WEST STREET IN THE TOWN OF ODESSA. INSTALLATION OF SANITARY SEWER STUB ALONG EMMA STREET FROM BRIDGE STREET.

SHEET INDEX

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NOTES:

GENERAL

A. ALL WORK TO BE CARRIED OUT IN ACCORDANCE WITH THE OCCUPATIONAL HEALTH AND SAFETY ACT.

B. ALL TRAFFIC CONTROL TO BE CARRIED OUT IN ACCORDANCE WITH BOOK 7 OF THE ONTARIO TRAFFIC MANUAL. ALL OPEN EXCAVATIONS TO BE MADE SAFE TO THE PUBLIC AT ALL TIMES.

C. ALL WORK TO BE CARRIED OUT IN ACCORDANCE WITH THE TOWNSHIP OF LOYALIST (TOWNSHIP) STANDARDS, ONTARIO PROVINCIAL STANDARD DRAWINGS (OPSD) AND ONTARIO PROVINCIAL STANDARD SPECIFICATIONS (OPSS). WHERE CONFLICT OCCURS, THE TOWNSHIP STANDARD TO GOVERN.

D. CONTRACTOR TO PROVIDE ALL PERMITS AND APPROVALS AND WORK PLANS TO THE ENGINEER PRIOR TO COMMENCING WORK ON THE SITE.

E. ALL EXISTING PROPERTY ACCESS, TRAFFIC MOVEMENT ON INTERSECTING STREETS AND MUNICIPAL/SECONDARY SERVICES ARE TO BE MAINTAINED DURING ALL WORKS. ALL WORK TO BE CARRIED OUT IN ACCORDANCE WITH THE ONTARIO PROVINCIAL STANDARD DRAWINGS (OPSD), ONTARIO PROVINCIAL STANDARD SPECIFICATIONS (OPSS), AND TOWNSHIP OF LOYALIST (TOWNSHIP) STANDARDS.

F. ALL EXISTING STORM AND WATERMAIN PIPE, ASPHALT, CONCRETE, TOPSOIL AND EARTH EXCAVATION TO BE REMOVED TO A LOCATION AS APPROVED BY THE ENGINEER.

G. THE ENGINEER SHALL PROVIDE BENCHMARK ELEVATIONS AND HORIZONTAL ALIGNMENT REFERENCE FOR THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DETAILED LAYOUT OF THE WORK.

H. ALL PROPERTY BARS TO BE PRESERVED AND REPLACED BY AN O.L.S. AT THE CONTRACTORS EXPENSE IF REMOVED/DAMAGED DURING CONSTRUCTION.

I. ALL MAINTENANCE HOLE AND CATCH BASIN FRAMES AND COVERS TO BE SET TO BASE COURSE ASPHALT ELEVATION AND RAISED PRIOR TO PLACEMENT OF FINAL COURSE ASPHALT AND SHALL BE FLUSH WITH THE FINAL ASPHALT AT ALL POINTS TO THE SATISFACTION OF THE ENGINEER.

J. THE CONTRACTOR SHALL MAKE THEIR OWN ARRANGEMENTS FOR THE SUPPLY OF TEMPORARY WATER AND POWER.

K. DEWATERING TO BE CARRIED OUT IN ACCORDANCE WITH OPSS 517 AND 518 TO MAINTAIN ALL TRENCHES IN A DRY CONDITION. CONTRACTOR RESPONSIBLE FOR OBTAINING M.E.C.P. PERMIT IF REQUIRED.

L. ALL ENGINE DRIVEN PUMPS TO BE ADEQUATELY SILENCED, SUITABLE FOR OPERATION IN A RESIDENTIAL DISTRICT.

M. ALL DISTURBED AREAS TO BE REINSTATED TO PREVIOUS CONDITION OR BETTER.

N. THE CONTRACTOR IS RESPONSIBLE FOR PRESERVATION OF ALL EXISTING FACILITIES AS WELL AS CONTACTING ALL UTILITY COMPANIES PRIOR TO COMMENCING WORK AND CO-ORDINATING CONSTRUCTION ACCORDINGLY.

O. ALL DIMENSIONS ARE IN METERS, EXCEPT PIPE DIAMETERS, WHICH ARE IN MILLIMETERS, UNLESS SPECIFIED OTHERWISE.

P. ALL DIMENSIONS SHALL BE CHECKED AND VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO ANY CONSTRUCTION, AND ANY DISCREPANCIES SHALL BE REPORTED IMMEDIATELY TO THE ENGINEER.

Q. EXISTING SERVICES AND UTILITIES SHOWN ON THESE CONTRACT DRAWINGS ARE BASED ON THE BEST INFORMATION AVAILABLE AND THEIR LOCATIONS ARE NOT GUARANTEED. THE CONTRACTOR SHALL INTERPRET THIS INFORMATION AS THEY WISH WITH THE UNDERSTANDING THAT THE TOWNSHIP DISCLAIMS ALL RESPONSIBILITY FOR ITS ACCURACY AND/OR SUFFICIENCY. THE CONTRACTOR IS REQUIRED TO NOTIFY THE VARIOUS UTILITY COMPANIES 48 HOURS PRIOR TO THE COMMENCEMENT OF ANY WORK.

MATERIALS

A. PIPE BEDDING TO BE GRANULAR 'A' FOR WATERMAIN, STORM AND SANITARY SEWERS. PIPE COVER TO BE GRANULAR 'A' FOR RIGID AND FLEXIBLE PIPE COMPACTED TO MIN 100% SPMDD. (MINIMUM BEDDING DEPTH 150mm, MINIMUM EXCAVATION CLEARANCE AND COVER 300mm AS PER OPSD 802.010, AND 802.013 AS DEEMED NECESSARY BY SOIL/GROUNDWATER CONDITIONS).

B. ALL TRENCH BACKFILL UP TO ROAD SUBGRADE TO BE SELECT SUBGRADE MATERIAL AS APPROVED BY THE GEOTECHNICAL ENGINEER. BACKFILL TO BE COMPACTED TO 100% OF THE MATERIAL'S STANDARD PROCTOR MAXIMUM DRY DENSITY (SPMDD).

C. SANITARY SEWER MAIN AND SERVICE LATERAL PIPE SHALL BE PVC SDR35, GREEN IN COLOUR, BELL AND SPIGOT WITH RUBBER GASKET TYPE JOINTS AND SHALL CONFORM TO CSA B-182.2, COMPLETE WITH DETECTABLE METALLIC TAPE. SERVICE CONNECTIONS WILL BE MADE WITH PRE-MANUFACTURED PVC FITTINGS WITH RUBBER GASKET TYPE JOINTS. SANITARY MAIN COUPLINGS SHALL BE FERNCO STRONG BACK RC 5000 SERIES COUPLINGS OR APPROVED EQUIVALENT. SERVICE PIPE COUPLINGS SHALL BE FERNCO STRONG BACK RC 1000 SERIES COUPLINGS OR APPROVED EQUIVALENT.

D. WATERMAIN MATERIAL TO BE POLYVINYL CHLORIDE (PVC) CLASS 235 SDR18. COPPER TRACER WIRE #12 SHALL BE INSTALLED THE ENTIRE LENGTH OF PVC WATERMAIN AND BROUGHT UP AT EACH VALVE AND HYDRANT AND CONNECTED TO FLANGE.

E. 25mm WATER SERVICES SHALL BE CROSSLINKED POLYETHYLENE (PEX) AND MUST BE INSTALLED ACCORDING TO ONTARIO PLUMBING CODE AND TOWNSHIP STANDARDS, UNLESS OTHERWISE SPECIFIED, COMPLETE WITH TRACER WIRE

F. ALL STORM SEWERS 375mmØ AND SMALLER TO BE PVC DR35 IN ACCORDANCE WITH CSA-B182.2 ASTM D-2779 AND ASTM D-3034 OR 320 IN ACCORDANCE WITH CSA B192.6, ASTM D-3350 OR LATEST REVISIONS. 450mmØ AND GREATER DIAMETER TO BE HDPE PS 320 IN ACCORDANCE WITH CSA B182.6, ASTMD-3350 OR LATEST REVISIONS.

G. ALL CULVERTS TO BE HDPE PS 320 IN ACCORDANCE WITH CSA B182.6, ASTM D-3350 OR LATEST REVISIONS. INSTALLED AS PER OPSS 421.

H. ALL CAST IN PLACE CONCRETE TO BE MINIMUM 30MPa AT 28 DAYS AND CONFORM TO OPSS.MUNI 1350.

I. ALL SPECIFIED AGGREGATES TO OPSD 1010.

J. RIP RAP - 100mmØ NOMINAL DIAMETER. MAXIMUM STONE SIZE TO BE 1.5 TIMES THE NOMINAL STONE SIZE. 80% OF STONES (BY MASS) MUST HAVE A DIAMETER OF AT LEAST 60% NOMINAL STONE SIZE. RIP RAP TO BE INSTALLED IN 300mm-THICK LAYER OVER FILTER FABRIC

K. FILTER FABRIC - TERRAFIX 270R OR APPROVED EQUIVALENT.

ROADS

A. ALL EXISTING ASPHALT, ASPHALT CURB, CONCRETE CURB AND SUBDRAIN WITHIN THE LIMITS OF THE CONTRACT TO BE REMOVED TO A SITE AS APPROVED BY THE ENGINEER. EXISTING GRANULAR BASE MAY BE USED FOR TRENCH BACKFILL AS APPROVED BY THE GEOTECHNICAL ENGINEER.

B. PAVEMENT STRUCTURE(S) SHALL CONSIST OF THE FOLLOWING:

ROADWAY - BRIDGE STREET
- 40mm HL3 ASPHALT
- 40mm HL8 ASPHALT
- 300mm GRANULAR 'A'
- EXISTING SUBBASE

ROADWAY - ALL OTHER STREETS
- 50mm HL3 ASPHALT
- 300mm GRANULAR 'A'
- EXISTING SUBBASE

DRIVEWAYS AND BOULEVARDS - GRAVEL
- RESIDENTIAL - 150mm OPSS GRANULAR 'A' (MINIMUM)
- COMMERCIAL - 300mm OPSS GRANULAR 'A' (MINIMUM)

DRIVEWAYS AND BOULEVARDS - ASPHALT
- 150mm GRANULAR 'A' (MINIMUM)
- 50mm HL3 ASPHALT

PRIVATE WALKWAYS - CONCRETE
- 50mm DEPTH GRANULAR 'A'
- 125mm CONCRETE (BROOM OR BURLAP FINISH AS DIRECTED AND CURED PER OPSS 351.07.12)

PRIVATE WALKWAY - INTERLOCKING AND/ OR PATIO STONE
- SALVAGED PAVERS OR PATIO STONES REINSTALLED TO THE SATISFACTION OF THE CONTRACT ADMINISTRATOR
- 150mm OF GRANULAR 'A' LIMESTONE BASE

C. SUBGRADE AND BOULEVARD MATERIAL TO BE COMPACTED TO A MINIMUM DRY DENSITY OF AT LEAST 100% SPMDD. SUBGRADE TO BE PROOF ROLLED AND APPROVED BY THE GEOTECHNICAL ENGINEER PRIOR TO PLACING GRANULAR 'B' ROAD BASE MATERIAL.

D. GRANULAR `A' AND `B' BASE TO BE COMPACTED TO 100% OF THE MATERIAL'S RESPECTIVE SPMDD.

E. WHERE CURBS ARE PRESENT, THE ROAD BASE SHALL INCORPORATE 100mmØ SUBDRAINS WITH FILTER FABRIC WRAP. ALL SUBDRAINS TO BE CONSTRUCTED IN ACCORDANCE WITH OPSS 405. SUBDRAIN TO BE INSTALLED BELOW CURB IN 300mm DEEP (BELOW SUBGRADE) GRANULAR 'A' TRENCH AND CONNECTED TO EACH CATCHBASIN OR CATCHBASIN MANHOLE AS PER OPSD 216.021.

F. ALL CURBS TO BE TERMINATED PER OPSD 608.010 UNLESS GUTTER OUTLET OTHERWISE NOTED.

G. ALL GRANULARS AND ASPHALT MATERIALS TO BE IN PLACED ACCORDANCE WITH OPSS 314 AND OPSS 310.

H. ASPHALT JOINTS WITH EXISTING ASPHALT TO BE SAW CUT STRAIGHT & PERPENDICULAR TO TRAVELED ROADWAY PRIOR TO PLACING NEW ASPHALT. HL3 SURFACE ASPHALT TO OVERLAP EXISTING ASPHALT BY A MINIMUM OF 500mm.TACK COAT TO BE APPLIED TO EXISTING ASPHALT SURFACES MEETING NEW ASPHALT.

I. REINSTATEMENT OF ALL DISTURBED BOULEVARDS TO INCLUDE REGRADING, 100mm TOPSOIL AND SOD TO OPSS 802 AND OPSS.MUNI 803.

J. AN APPLICATION OF TACK COAT IS TO BE APPLIED TO ALL BASE ASPHALT AREAS INCLUDING SAWCUTS FOR LAP JOINTS PRIOR TO THE PLACEMENT OF TOP COAT AND BE IN ACCORDANCE WITH OPSS.PROV 308.

K. ALL EXISTING CULVERTS ARE TO BE REMOVED WITHIN LIMITS OF RECONSTRUCTION UNLESS OTHERWISE NOTED. NEW CULVERTS TO BE INSTALLED AS SHOWN ON PLAN(S).

L. HEADWALL TO BE CONSTRUCTED PER 804.030 MODIFIED TO ACCOMMODATE A PIPE DIAMETER OF 900 MM. SHOP DRAWINGS TO BE SUBMITTED BY THE CONTRACTOR FOR THE TOWNSHIP'S APPROVAL BEFORE ORDERING THE STRUCTURE. FOUR (4) BARS OF GRATING TO BE INSTALLED ON HEADWALL PER OPSD 804.050.

SANITARY SEWERS

A. SEE MATERIALS SECTION FOR PIPE, PIPE BEDDING, PIPE COVER AND TRENCH EXCAVATION AND BACKFILL REQUIREMENTS.

B. ALL REMOVED SANITARY SERVICE LATERALS TO BE REPLACED TO PROPERTY LINE AT SAME LOCATION UNLESS OTHERWISE NOTED.

C. BENCHING TO BE ADDED TO EXISTING SANITARY MAINTENANCE HOLES TO ACCOMMODATE CONNECTION AND OUTLET OF NEW SANITARY SEWER WHERE APPLICABLE.

D. PRECAST MAINTENANCE HOLES TO OPSD 701.010 WITH BENCHING TO OBVERT TO OPSD 701.021, STEPS TO OPSD 405.010, FRAMES AND GRATES TO OPSD 401.010 CLOSED COVER.

E. ALL SANITARY MANHOLES TO BE BENCHED AND PARGED. AN OUTSIDE RUBBER SEALER GASKET SHALL BE APPLIED TO MANHOLE SECTION JOINTS IN WET AREAS.

F. CONNECT SANITARY SERVICE LATERAL TO THE EXISTING SERVICE AT THE PROPERTY LIMIT ENSURING A WATERTIGHT JOINT. CONNECTIONS SHALL BE 90 DEGREES TO THE MAIN WITH FERNCO COUPLERS OR AN APPROVED EQUIVALENT

G. GENERAL INSTALLATION AND TESTING OF SANITARY SEWERS AND APPURTENANCES TO BE IN ACCORDANCE WITH OPSS 407, 408, 409 (CCTV), 410, 421 AND ALL SPECIFICATIONS REFERENCED WITHIN THESE SECTIONS MUST BE COMPLETED AND APPROVED AFTER INSTALLATION AND BEFORE ASPHALT IS PLACED. MAXIMUM PIPE DEFLECTION FROM COMBINED LIVE AND DEAD LOADING SHALL NOT EXCEED ANY CSA, OPS OR MANUFACTURERS RECOMMENDED SPECIFICATIONS.

STORM SEWERS

A. SEE MATERIALS SECTION FOR PIPE, PIPE BEDDING, PIPE COVER AND TRENCH EXCAVATION AND BACKFILL REQUIREMENTS.

B. PRECAST MAINTENANCE HOLES SHALL BE 1200mmØ UNLESS OTHERWISE SPECIFIED TO OPSD 701.010 WITH BENCHING TO OBVERT TO OPSD 701.021 AND STEPS TO OPSD 405.010. CATCHBASIN MANHOLES TO HAVE 300mm SUMP FOR PIPES LESS THAN 450mmØ. FRAMES AND GRATES ON MAINTENANCE HOLES TO OPSD 401.010 CLOSED COVER, FRAMES AND GRATES ON CATCH BASIN MAINTENANCE HOLES TO OPSD 400.010.

C. ALL STORM MAN HOLES TO BE BENCHED AND PARGED. AN OUTSIDE RUBBER SEALER GASKET SHOULD BE APPLIED TO MAN HOLES SECTION JOINTS IN WET AREAS.

D. CATCH BASINS TO BE 600mm SQUARE PRECAST CONCRETE TO OPSD 705.010, OR WHERE SPECIFIED, 600mmx1450mm PRECAST CONCRETE TO OPSD 705.020. FRAME AND GRATE TO OPSD 400.010. MINIMUM 600mm SUMP

E. DITCH INLET CATCHBASINS TO BE 1200mm X 600mm PRECAST CONCRETE TO OPSD 705.040 TYPE 'A'. DITCH INLET CATCHBASIN MANHOLES TO BE PRECAST CONCRETE TO OPSD 702.040 TYPE 'A'. GRATING PER 403.010.. MINIMUM SUMP 600mm.

F. ALL SUBDRAINS TO BE CONNECTED TO EACH CATCH BASIN OR CATCH BASIN MAINTENANCE HOLE AS PER OPSD 216.021.

G. CULVERTS SHALL BE INSTALLED WITH MINIMUM 300mm COVER

H. OIL/GRIT SEPARATOR (OGS) UNIT TO BE SIZED TO PROVIDE 80% TSS REMOVAL TO 90% OF ANNUAL RUNOFF FOR A FINE PARTICLE SIZE DISTRIBUTION DRAINING FROM AN APPROXIMATELY 6.41ha AREA OF RUNOFF COEFFICIENT C=0.49 WITH NO CONSIDERATION FOR UPSTREAM FLOW ATTENUATION. THE STORMCEPTOR EF10, OR APPROVED EQUIVALENT, IS CONSIDERED TO BE AN ACCEPTABLE UNIT FOR THIS APPLICATION. INSTALL PER MANUFACTURER'S SPECIFICATIONS.

WATERMAINS

A. PRIOR TO COMMENCING WATERMAIN INSTALLATION CONTRACTOR SHALL DISCONNECT EXISTING WATERMAIN. CONTRACTOR SHALL RECONNECT THE NEW WATERMAIN AT THESE LOCATIONS AS PER GENERAL TESTING AND INSTALLATION NOTE BELOW.

B. ALL EXISTING WATERMAIN AND SERVICES THAT ARE REMOVED TO FACILITATE NEW CONSTRUCTION ARE TO BE REMOVED OFF SITE TO A LOCATION APPROVED BY ENGINEER.

C. ALL EXISTING WATERMAIN TO BE REMOVED UNLESS NOTED ON DRAWINGS. ALL EXISTING WATER SERVICES ARE TO BE REPLACED.

D. MINIMUM COVER ON WATERMAIN AND SERVICES TO BE 1.70m AS PER TOWNSHIP STANDARDS. ANY INSULATION REQUIRED TO MEET ANY APPLICABLE SPECIFICATION DUE TO THE DEPTH OF INSTALLATION OR PROXIMITY TO EXISTING INFRASTRUCTURE SHALL BE INCLUDED UNDER THE ITEM AND BE INSTALLED AS PER OPSD 1109.030. THE LOCATION OF INSULATION SHALL BE NOTED ON THE AS-BUILT DRAWINGS..

E. CLEARANCE BETWEEN WATERMAINS AND SEWERS TO BE A MINIMUM OF 0.5m VERTICAL WHERE WATER MAIN CROSSES ABOVE OR BELOW SEWER AND 2.5m MINIMUM HORIZONTAL SEPARATION.

F. ALL MECHANICAL JOINTS TO BE RESTRAINED USING UNI-FLANGE SERIES 1300, 1350, 1360, 1390 OR APPROVED EQUIVALENT. THRUST BLOCKS SHALL BE REPLACED WITH BELL AND SPIGOT JOINT RESTRAINERS ON BOTH SIDES OF ALL BENDS, TEES, VALVES AND FITTINGS. THE NUMBER OF JOINTS TO BE RESTRAINED SHALL BE AS DIRECTED BY THE CONTRACT ADMINISTRATOR.

G. CATHODIC PROTECTION OF WATERMAINS AS PER OPSS 702 AND OPSD 1109.011, PROVIDED AS FOLLOWS:
- •ONE (1) 2.3KG ZINC ANODE FOR EVERY 500M OF TRACER WIRE BY THERMITE CONNECTION
- •ONE (1) 2.3KG ZINC ANODE FOR EACH WATER SERVICE BY ELECTRICAL CLAMP CONNECTION.
- •ONE (1) 7.7KG MAGNESIUM ANODE FOR EACH VALVE AND HYDRANT FITTING BY THERMITE CONNECTION.

H. HYDRANTS TO BE OPSD 1105.010. HYDRANT VALVES SHALL BE 1.0M FROM THE HYDRANT. HYDRANTS SHALL BE INSTALLED MINIMUM 1.0m FROM ANY EXISTING UTILITY. DRAIN PLUGS SHALL BE INSTALLED WHERE HIGH WATER TABLE IS ENCOUNTERED.

I. VALVES SHALL BE PLACED AT ALL INTERSECTIONS OF WATERMAIN AND PERPENDICULAR STREET LINE.

J. EXISTING WATER SERVICE CONNECTIONS TO BE REPLACED TO PROPERTY LINE AND SHALL INCLUDE A NEW CURB STOP AND WATER BOX AS PER OPSD 1104.010. NEW WATER SERVICE LATERALS SHALL BE PRESSURE TESTED TOGETHER WITH THE WATERMAIN. FOLLOWING TESTING THE CONTRACTOR SHALL OPERATE EACH WATER SERVICE TO VERIFY FULL FLOW AND PRESSURE AT THE CURB STOP TO THE SATISFACTION OF THE TOWNSHIP. CONTRACTOR TO MAKE CONNECTIONS TO PRIVATE LINE AFTER THE WATERMAIN HAS BEEN SWABBED, PRESSURE TESTED, FLUSHED AND DISINFECTED WITH TWO (2) CONSECUTIVE ROUNDS OF WATER SAMPLES, TAKEN 24 HOURS APART, SHALL PASS BOTH THE CHLORINE RESIDUAL AND BACTERIOLOGICAL REQUIREMENTS ALL TESTING OF WATERMAIN.

K. ONLY LICENSED OPERATORS EMPLOYED BY LOYALIST TOWNSHIP ARE AUTHORIZED TO OPERATE TOWNSHIP VALVES, PRESSURE REDUCING STATIONS AND HYDRANTS.

BOULEVARD AND SIDEWALK

A. CONCRETE SIDEWALK TO OPSD 310.010 AND 310.050. SIDEWALK BASE TO CONSIST OF MINIMUM 150mm OF GRANULAR 'A' COMPACTED TO 100% SPMDD. SIDEWALK WIDTHS AS NOTED IN DRAWINGS.

B. INCREASE SIDEWALK DEPTH TO 200 MM AT COMMERCIAL ENTRANCES AND WHERE NOTED ON THE DRAWINGS.

C. ALL GRASS AND VEGETATION COVERED AREAS SHALL BE RESTORED BY PLACING MIN. 100MM OF APPROVED TOPSOIL AND NURSERY SOD TO OPSS 802 AND 803 UNLESS NOTED OTHERWISE. BOULEVARD GRADING TO ENSURE POSITIVE DRAINAGE TOWARDS ROAD TO GREATEST DEGREE ACHIEVABLE.

D. ANY DISTURBED AREAS WITHIN THE RIGHT OF WAY AND ON PRIVATE PROPERTY SHALL BE RESTORED TO EXISTING OR BETTER CONDITION TO THE SATISFACTION OF THE ENGINEER.

E. DEPRESS CURB ONLY WHERE NOTED ON THE DRAWINGS.

F. ALL DISTURBED DRIVEWAYS TO BE REPLACED TO EXTENTS SHOWN ON DRAWINGS (TO PROPERTY LINE AT THE MINIMUM). CURB DEPRESSIONS AND DRIVEWAY WIDTHS TO MATCH ALL EXISTING ENTRANCE LOCATIONS. ENTRANCE GRADES TO BE MINIMUM 2% AND MAXIMUM 7%. WHERE SITE CONDITIONS DO NOT PERMIT A MINIMUM 2% GRADE, THE DRIVEWAY SHALL BE RESTORED TO NO LESS THAN ITS EXISTING GRADE.

EROSION AND SEDIMENT CONTROL

A. ALL SEDIMENT AND EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO THE CONTRACTOR COMMENCING ANY WORK ON SITE AND SHALL BE MAINTAINED UNTIL SUCH TIME AS THE CONTRACTOR HAS COMPLETED ALL WORK REQUIRED. REMOVAL OF SEDIMENT AND EROSION CONTROL MEASURES SHALL BE THE LAST ITEM UNDERTAKEN BY THE CONTRACTOR AND SHALL NOT BE REMOVED UNTIL VEGETATION HAS BEEN RE-ESTABLISHED AND THE SOIL HAS BEEN STABILIZED.

B. TEMPORARY SILT FENCE TO BE INSTALLED PER OPSD 219.110 WHERE SHOWN ON THE PLANS. DOUBLE ROWS OF SILT FENCE TO BE PROVIDED AT IDENTIFIED DITCH OUTLET LOCATIONS.

C. STRAW BALE BARRIERS TO BE INSTALLED IN ALL DITCHES WITHIN THE CONSTRUCTION LIMITS AS PER OPSD 219.100. MINIMUM SPACING FOR THE STRAW BALE BARRIERS TO BE BASED ON DITCH GRADE AS FOLLOWS:
DITCH GRADE ≤ 2.0%: MIN. SPACING OF 30m
DITCH GRADE > 2.0%: MIN SPACING OF 15m

D. ALL MEASURES REQUIRED TO COMPLY WITH SOIL MANAGEMENT PLAN IF ONE HAS BEEN DEVELOPED FOR THIS PROJECT.

E. NO REFUELING OF VEHICLES, EQUIPMENT, ETC. OR STORAGE OF FUEL WITHIN 30M OF ANY WATERCOURSE.

F. ANY DISCHARGE OF WATER FROM DE-WATERING ACTIVITY IS TO BE DONE AWAY FROM ANY WATERCOURSE USING FILTER BAGS, SETTLING PONDS, CHECK DAMS, ETC. TO PREVENT SILT AND SEDIMENT FROM ENTERING WATERCOURSES, ETC. DISCHARGE LOCATIONS SHALL BE PLACED A MINIMUM OF 30M FROM ANY WATERCOURSE.

G. STATIONARY EQUIPMENT OPERATING WITHIN 30M OF ANY WATERCOURSE SHALL HAVE HYDROCARBON SPILL CONTAINMENT MEASURES IN PLACE.

H. DISTURBED AREAS AT THE CONSTRUCTION SITE ARE TO BE STABILIZED AND RE-VEGETATED WITHIN 45 DAYS OF PROJECT COMPLETION, USING NATIVE PLANT SPECIES AS MUCH AS POSSIBLE, AND THE SITE IS TO BE RESTORED TO A PRE-CONSTRUCTION STATE OR BETTER.

I. FILTER FABRIC TO BE INSTALLED TEMPORARILY UNDER GRATE OF ALL INLET STORM STRUCTURES

No.	Date	By	Revision
6	2023.04.06	AW	ISSUED FOR TENDER
5	2022.07.22	AW	REVISED AS PER TOWNSHIP COMMENTS
4	2021.06.17	AW	FOR DISCUSSION PURPOSES
3	2020.06.05	EB	FINAL DESIGN REVIEW
2	2019.10.09	EB	PROGRESS SET
1	2019.01.25	EB	DRAFT SUBMISSION

Scale: (Scales below are for Ansi D Full Size Dwg.)

Horiz: NTS Vert:

Stamp	Stamp		
		Design	SR
		Ch'kd	EB
		Drawn	SR
		Date	JUN 2020

Minley GROUP CONSULTING ENGINEERS PLANNERS

ODESSA WEST DRAINAGE IMPROVEMENTS

NOTES

LOYALIST TOWNSHIP

Consultant File No.	Drawing No.
18838-1 101	**101**

FILE NAME: K:\Projects\18838 - Odessa Drainage Study\18838-1 Project\Drawings_civil\layouts\18838-1 - Notes and Legend.dwg

LEGEND:

EXISTING:

HSP	HYDRO SERVICE POLE
H	HYDRO POLE
B	BELL POLE
B & H	HYDRO/BELL POLE
LP	LIGHT POLE
	POLE GUY
LS	LIGHT STANDARD
TS	TRAFFIC SIGNAL
S.	SIGN
S.	BILLBOARD SIGN
BELL BOX	BELL BOX
CATV	CABLE TV BOX
WV	WATER VALVE
GV	GAS VALVE
FH	FIRE HYDRANT
MH	MANHOLE
CB	CATCH BASIN
GR	STORM GRATE
DCB	DOUBLE CATCH BASIN
CBMH	CATCH BASIN MANHOLE
DI	DITCH INLET
HW	HAND WELL TS
ELEC MH	ELECTRICAL MANHOLE
FP	FLAG POLE
WE	WELL
FL	FLASHING LIGHT
FLB	FLASHING LIGHT and BELL
WW	WIG–WAG
WWB	WIG–WAG and BELL
RCS	RAILWAY CROSSING SIGN
	BENCH
	BUSH or BRUSH
	TREE
	TREE LINE
IB	IRON BAR
RIB or IBø	ROUND IRON BAR
SIB	STANDARD IRON BAR
SSIB	SHORT STANDARD IRON BAR
	HEDGE
BO	BOLLARD
	DOORWAY
	GARBAGE CAN

B	BELL
O/B	OVERHEAD BELL
CATV	CABLE
COM	COMMUNICATIONS
CON	CONDENSATE
D	DRAINAGE
E	ELEC
OPT	FIBRE OPTICS
G	GAS
HW	HOT WATER SUPPLY
H	HYDRO
O/H	OVERHEAD HYDRO
SL	STREET LIGHT
SAN	SANITARY
ST	STORM
W	WATER
	CHANGE IN GRADE
	EDGE OF GRAVEL SHOULDER
	DITCH, BOTTOM

PROPOSED SERVICING:

	PROPOSED HYDRANT
	PROPOSED WM TEE
	PROPOSED WM GATE VALVE
	PROPOSED WM BEND
	PROPOSED WM REDUCER
	PROPOSED VALVE CHAMBER
	PROPOSED WM CAP
	PROPOSED CATCH BASIN
	PROPOSED TWIN INLET CB
	PROPOSED 600x600 DITCH INLET
	PROPOSED 1200x600 DITCH INLET
	PROPOSED 1200 CBMH
	PROPOSED 1500 CBMH
	PROPOSED 1500 DCBMH
	PROPOSED 1200 STORM MH
	PROPOSED 1500 STORM MH
	PROPOSED 1500 STORM DIMH
	STORMCEPTOR MH
	PROPOSED SANITARY MH
	PROPOSED SANITARY
	PROPOSED STORM
	PROPOSED WATER
	PROPOSED SANITARY SERVICE AND CLEAN OUT
	PROPOSED STORM SERVICE
	PROPOSED WATER SERVICE AND CURB STOP
	PROPOSED CULVERT

PROPOSED GRADING:

0.0%	PROPOSED GRADE
+00.00	PROPOSED ELEVATION
	PROPOSED CONCRETE
	TACTILE WARNING SURFACE INDICATOR
	PAVING STONE
	PROPOSED ASPHALT
	CURB/SIDEWALK DEPRESSION
	LIMIT OF GRADING

CONTROLS:

MTO HCM # 0622, ON MAIN STREET, APPROX 390m EAST OF BRIDGE STREET INTERSECTION
N. 4904066.582
E. 362940.750

MTO HCM # 0611, ON MAIN STREET, APPROX 80m WEST OF WEST STREET INTERSECTION
N. 4904015.006
E. 362282.531

MTO VCM # 8613,
N. 4904668.186
E. 363691.617
Z. 134.056

REMOVALS:

	ADJUST SERVICE / FRAME AND GRADE
	THIRD PARTY ADJUSTMENT(S)

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LEGEND

Loyalist TOWNSHIP

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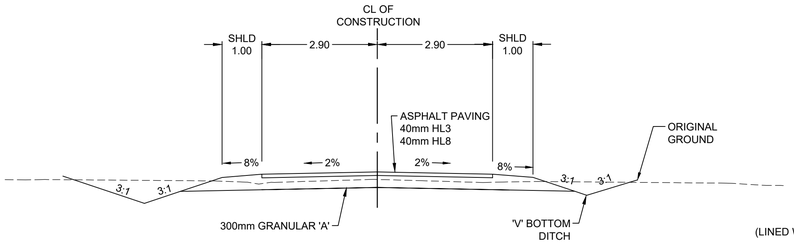
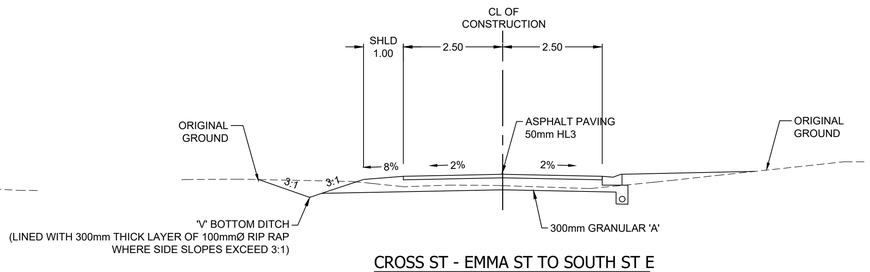
Drawing No. 102

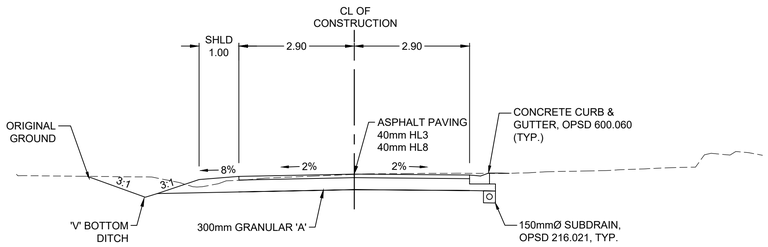
FILE NAME: K:\Projects\18838 - Odessa Drainage Study\18838-1 Project\Drawings_civil\layouts\18838-1 - Notes and Legend.dwg



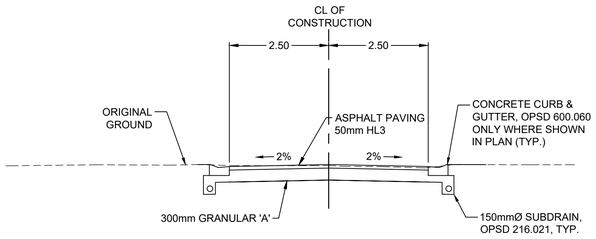
BRIDGE ST - SOUTH PROJECT LIMIT TO SOUTH OF EMMA ST



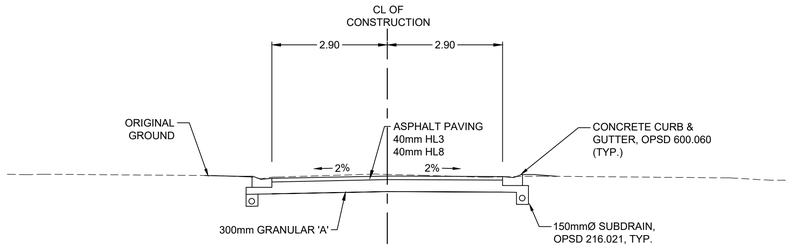
CROSS ST - EMMA ST TO SOUTH ST E



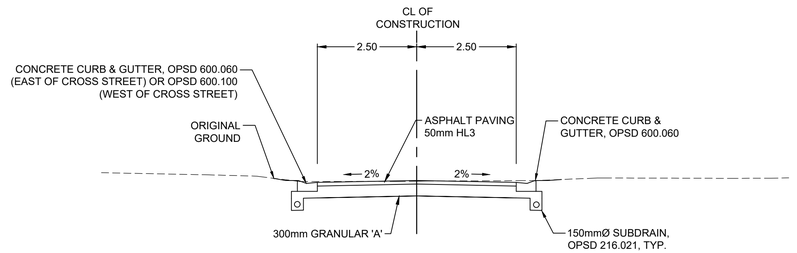
BRIDGE ST - EMMA ST TO BATTERY ST



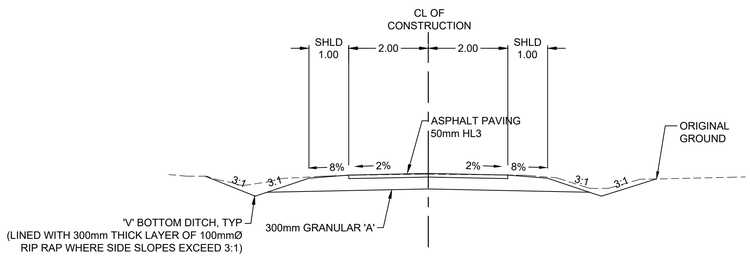
CROSS ST - BATTERY ST TO SOUTH ST E



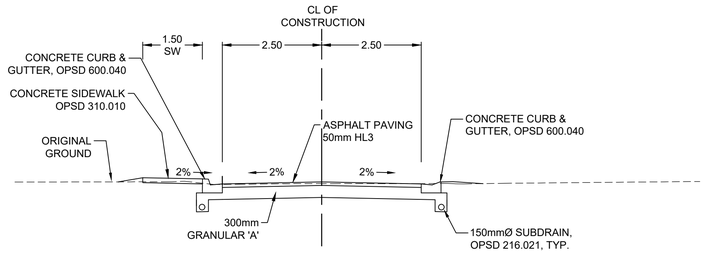
BRIDGE ST - BATTERY ST TO MAIN ST



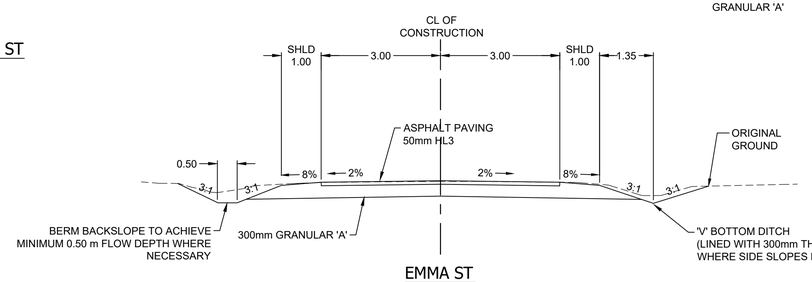
SOUTH ST E



BATTERY ST



WEST ST



EMMA ST

NOTE: ALL EXISTING ROADWAYS WITHIN LIMITS OF CONSTRUCTION TO BE REMOVED AND RECONSTRUCTED

No.	Date	By	Revision
6	2023.04.06	AW	ISSUED FOR TENDER
5	2022.07.22	AW	REVISED AS PER TOWNSHIP COMMENTS
4	2021.06.17	AW	FOR DISCUSSION PURPOSES
3	2020.06.05	EB	FINAL DESIGN REVIEW
2	2019.10.09	EB	PROGRESS SET
1	2019.01.25	EB	DRAFT SUBMISSION

Scale: (Scales below are for Ansi D Full Size Dwg.)

Horiz: 1:75 Vert:

Stamp	Stamp		
		Design	SR
		Ch'kd	EB
		Drawn	SR
		Date	JUN 2020

Minley GROUP CONSULTING ENGINEERS PLANNERS

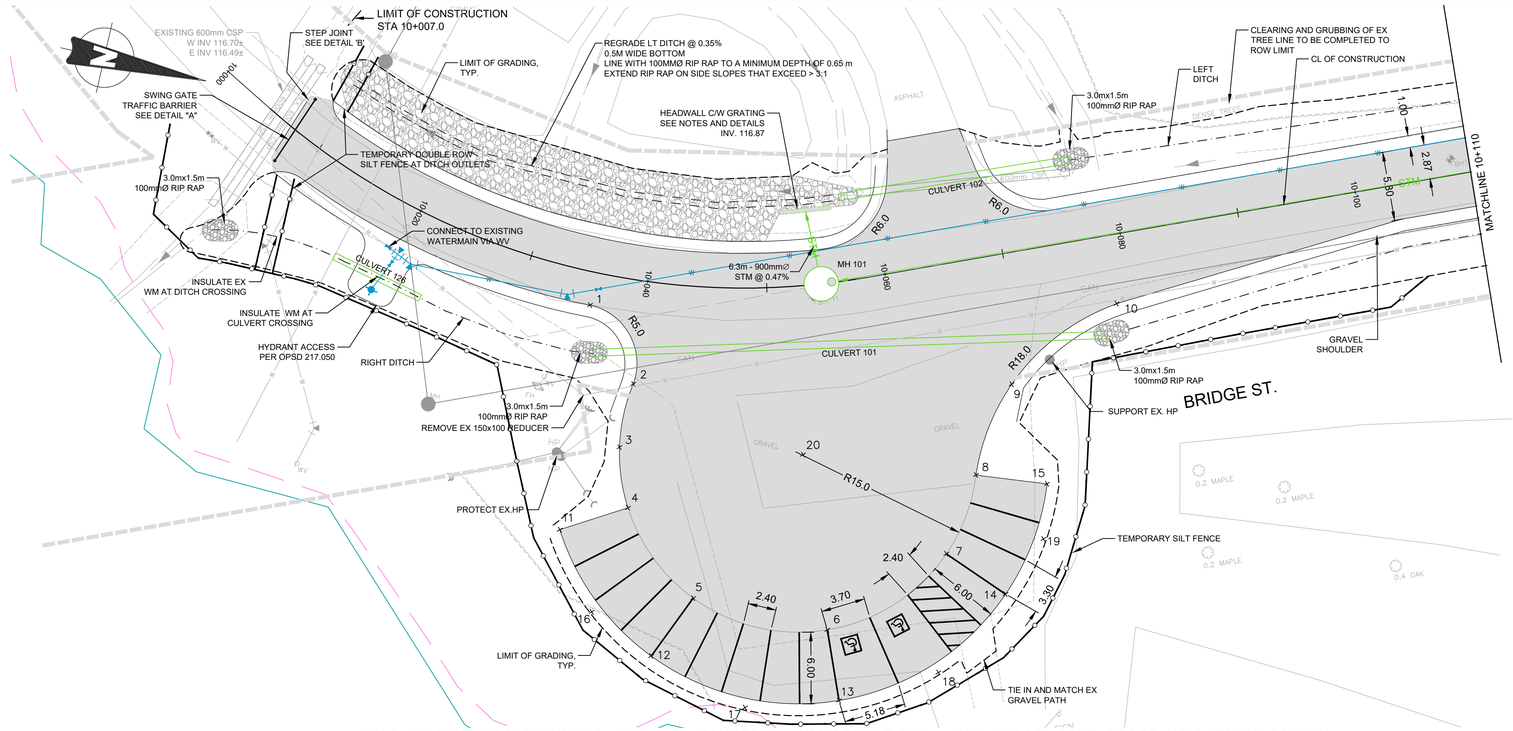
ODESSA WEST DRAINAGE IMPROVEMENTS

TYPICAL SECTIONS

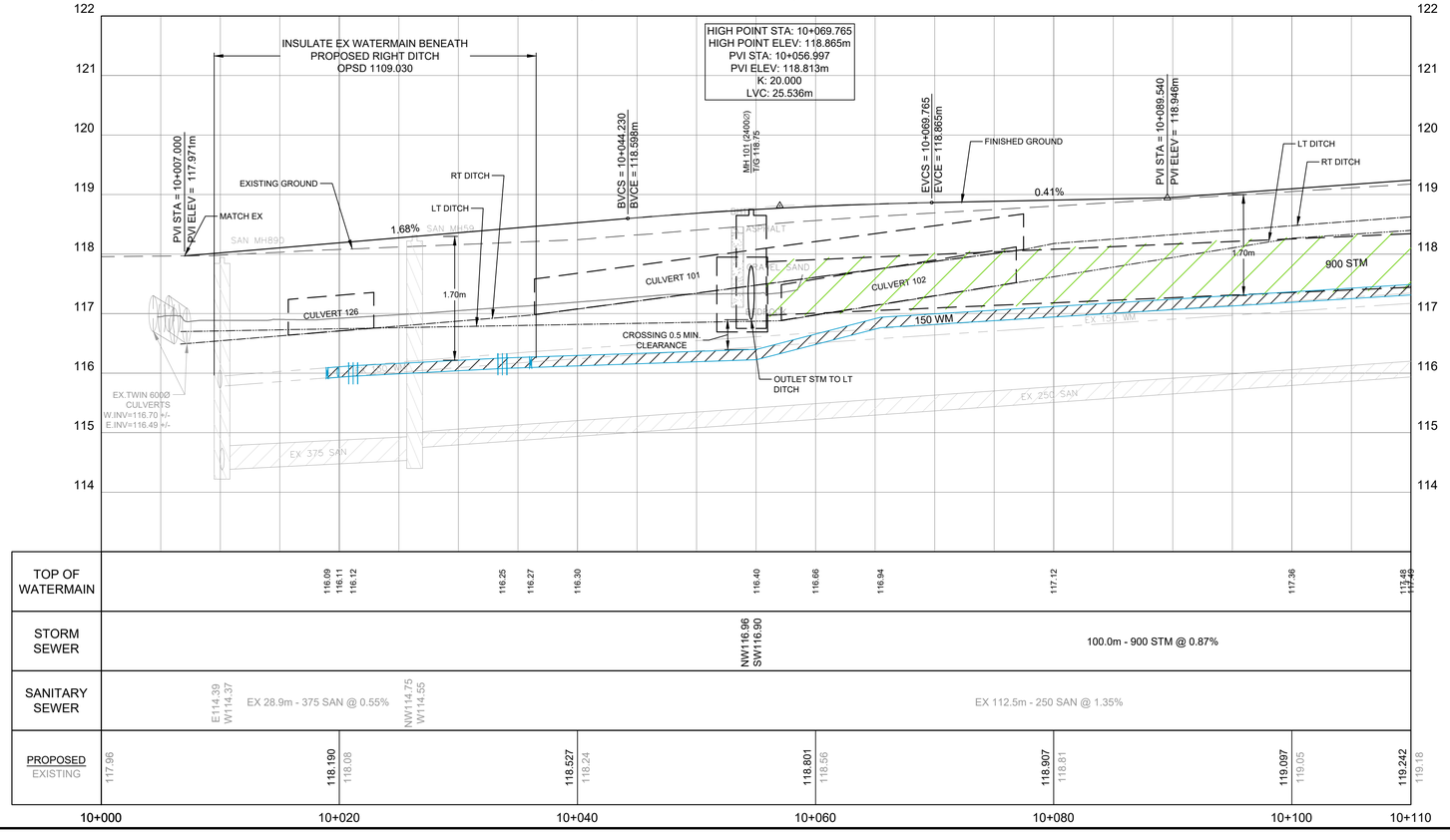
Loyalist TOWNSHIP

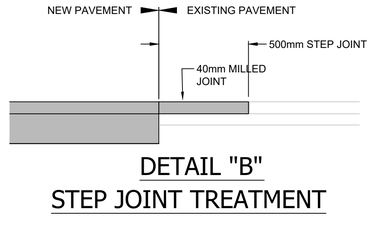
Consultant File No.	Drawing No.
18838-1	200

FILE NAME: K:\Projects\18838 - Odessa Drainage Study\18838-1 Project\Drawings\1_civil\layouts\18838-1 - Typical Section.dwg

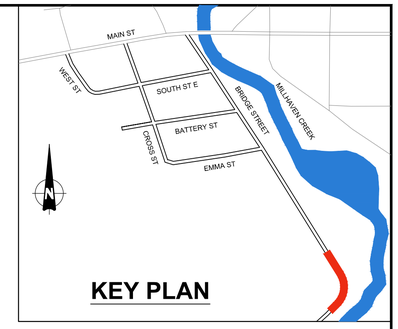


NOTE: ALL EXISTING ROADWAYS, WATERMAIN (INCL. SERVICES AND HYDRANTS) AND CULVERTS WITHIN PROJECT SITE TO BE REMOVED TO LIMITS SHOWN.

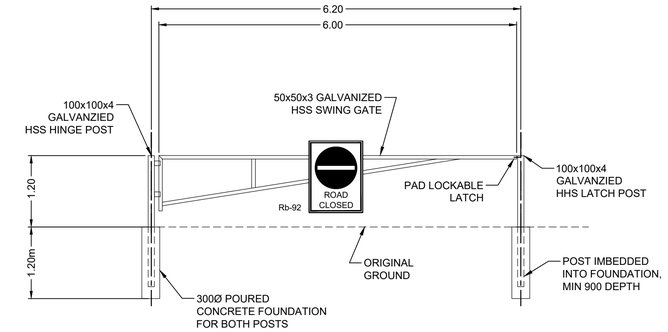




DETAIL "B"
STEP JOINT TREATMENT



KEY PLAN



DETAIL "A" SWING GATE TRAFFIC BARRIER

PROPOSED SPOT ELEVATION TABLE
SEE PLAN VIEW FOR ID LOCATIONS

POINT ID	ELEVATION	NORTHING	EASTING
1	118.37	4903522.45	362787.05
2	118.44	4903527.46	362792.68
3	118.28	4903527.51	362798.10
4	118.21	4903529.33	362802.90
5	118.15	4903536.35	362809.06
6	118.33	4903547.89	362809.15
7	118.59	4903556.20	362800.73
8	118.70	4903557.16	362793.73
9	118.76	4903558.38	362785.66
10	118.82	4903565.46	362777.11
11	118.15	4903524.17	362805.96
12	118.03	4903533.99	362814.57
13	118.24	4903550.16	362814.71
14	118.54	4903561.79	362802.91
15	118.64	4903563.13	362793.13
16	117.86	4903528.31	362812.08
17	117.93	4903542.62	362817.05
18	118.39	4903557.76	362810.57
19	118.64	4903563.86	362797.70
20	118.61	4903542.65	362795.29

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2	2019.10.09	EB	PROGRESS SET
1	2019.01.25	EB	DRAFT SUBMISSION

Scale: (Scales below are for Ansi D Full Size Dwg.)

Horiz: 1:250 Vert: 1:50

Stamp	Stamp		
		Design	SR
		Ch'kd	EB
		Drawn	SR
		Date	JUN 2020

Ainley GROUP CONSULTING ENGINEERS PLANNERS

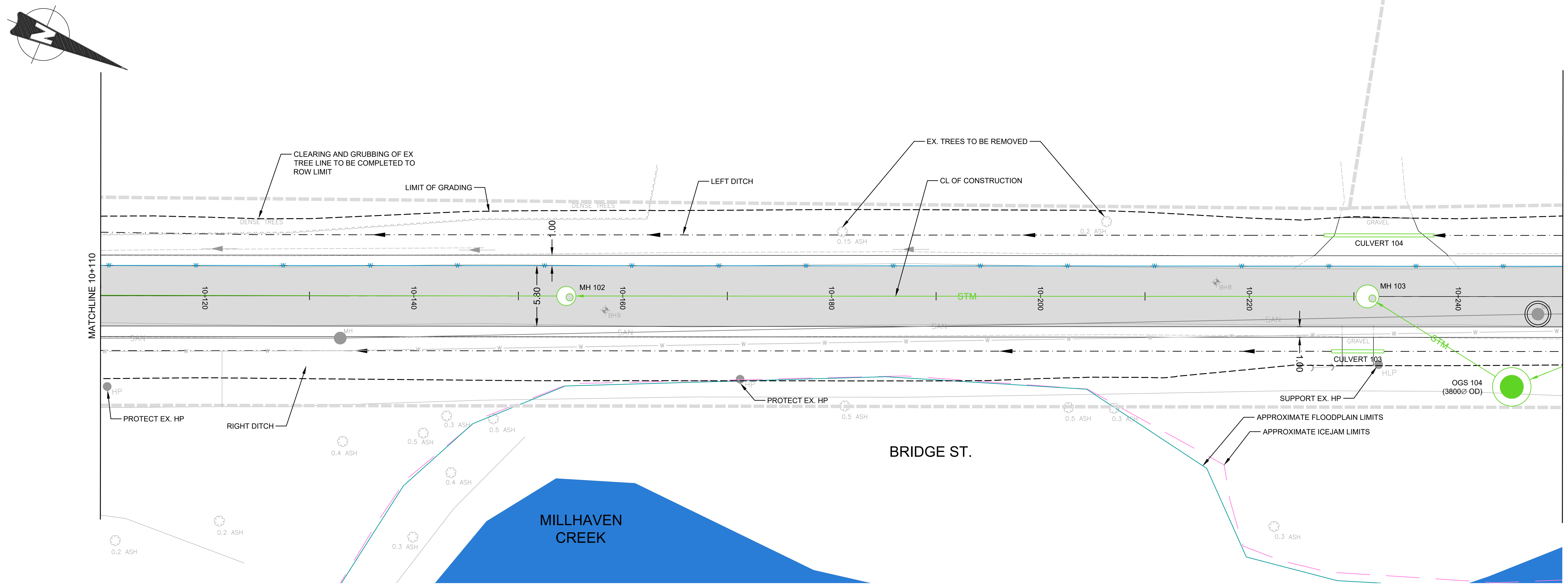
ODESSA WEST DRAINAGE IMPROVEMENTS

PLAN AND PROFILE - BRIDGE ST.
STA 10+035.6 TO STA 10+110

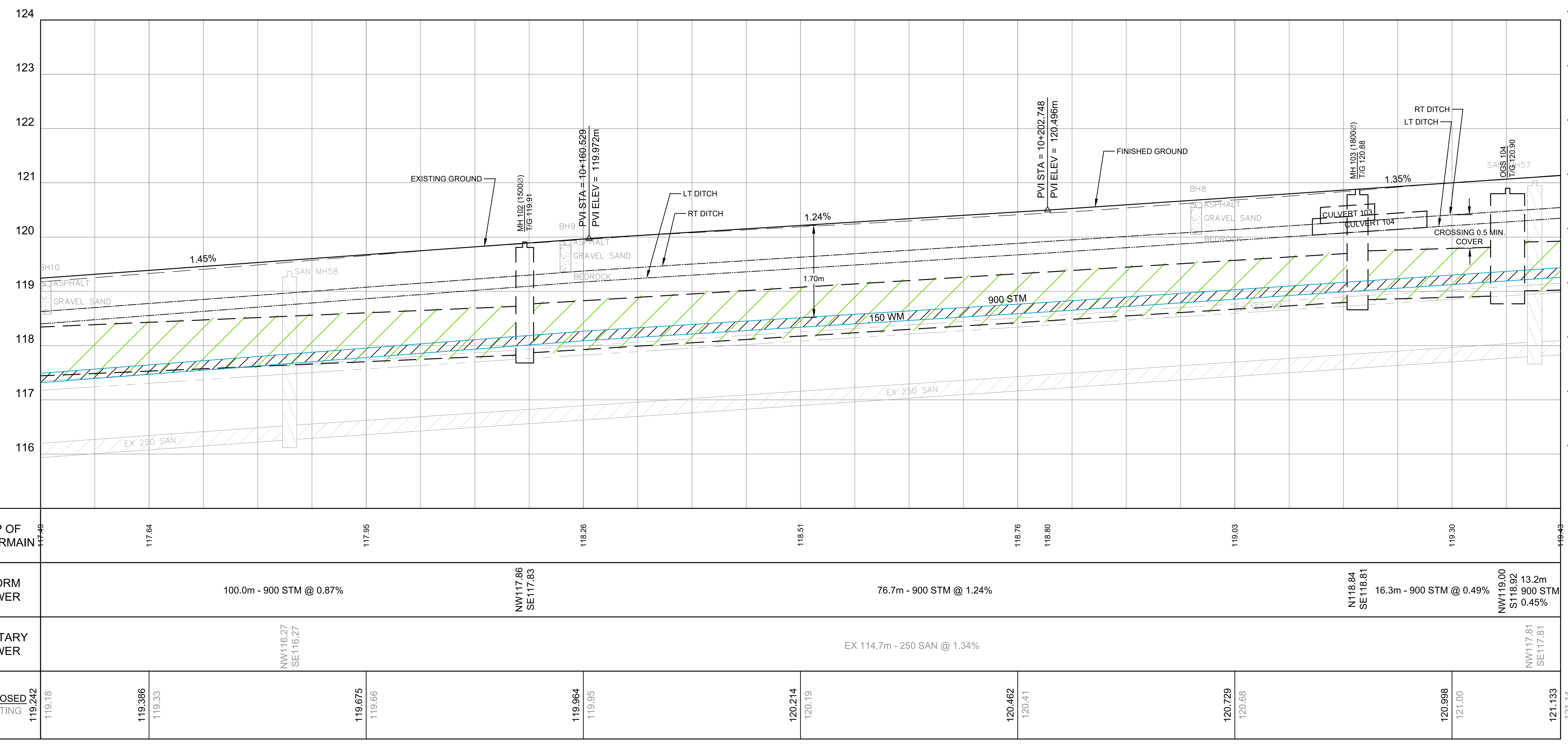
Loyalist TOWNSHIP

Consultant File No.	Drawing No.
18838-1	300

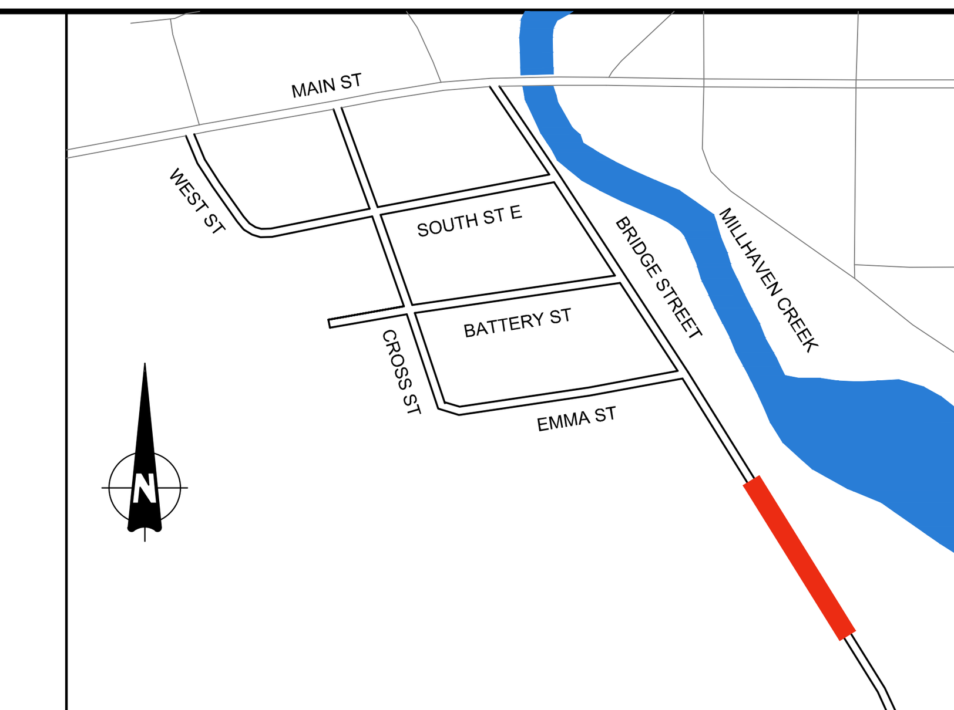
FILE NAME: K:\Projects\18838 - Odessa Drainage Study\18838-1 Project\Drawings_civil\layouts\18838-1 - Plan Profile_Bridge.dwg



NOTE: ALL EXISTING ROADWAYS, WATERMAIN (INCL. SERVICES AND HYDRANTS) AND CULVERTS WITHIN PROJECT SITE TO BE REMOVED TO LIMITS SHOWN.



FILE NAME: K:\Projects\18838 - Odessa Drainage Study\18838-1 Project\Drawings_civil\layouts\18838-1 - Plan Profile_Bridge.dwg



KEY PLAN

No.	Date	By	Revision
6	2023.04.06	AW	ISSUED FOR TENDER
5	2022.07.22	AW	REVISED AS PER TOWNSHIP COMMENTS
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2	2019.10.09	EB	PROGRESS SET
1	2019.01.25	EB	DRAFT SUBMISSION

Scale: (Scales below are for Ansi D Full Size Dwg.)

Horiz: 1:250 Vert: 1:50

Stamp

Stamp

Design	SR
Ch'kd	EB
Drawn	SR
Date	JUN 2020

Ainley GROUP CONSULTING ENGINEERS PLANNERS

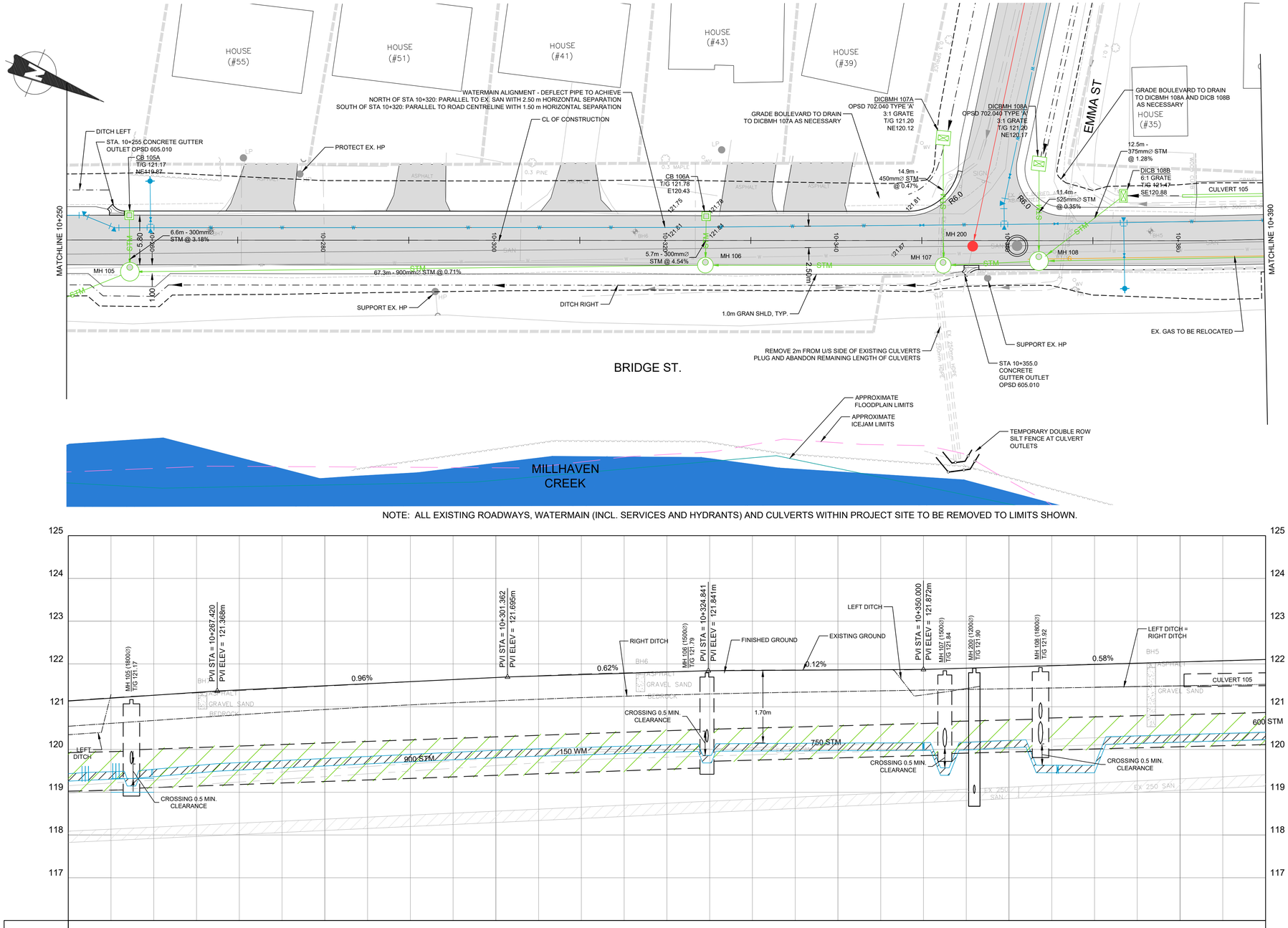
ODESSA WEST DRAINAGE IMPROVEMENTS

PLAN AND PROFILE - BRIDGE ST.
STA 10+110 TO STA 10+250

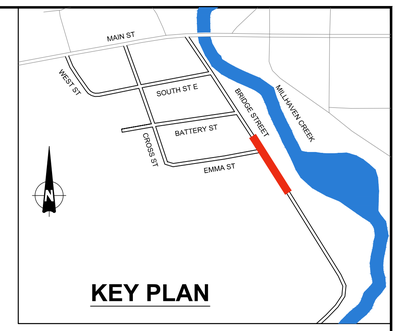
Loyalist TOWNSHIP

Consultant File No. **18838-1**

Drawing No. **301**



NOTE: ALL EXISTING ROADWAYS, WATERMAIN (INCL. SERVICES AND HYDRANTS) AND CULVERTS WITHIN PROJECT SITE TO BE REMOVED TO LIMITS SHOWN.



No.	Date	By	Revision
6	2023.04.06	AW	ISSUED FOR TENDER
5	2022.07.22	AW	REVISED AS PER TOWNSHIP COMMENTS
4	2021.06.17	AW	FOR DISCUSSION PURPOSES
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1	2019.01.25	EB	DRAFT SUBMISSION

Scale: (Scales below are for Ansi D Full Size Dwg.)

Horiz: 1:250 Vert: 1:50

Stamp	Stamp		
		Design	SR
		Ch'kd	EB
		Drawn	SR
		Date	JUN 2020

Ainley GROUP — CONSULTING ENGINEERS PLANNERS

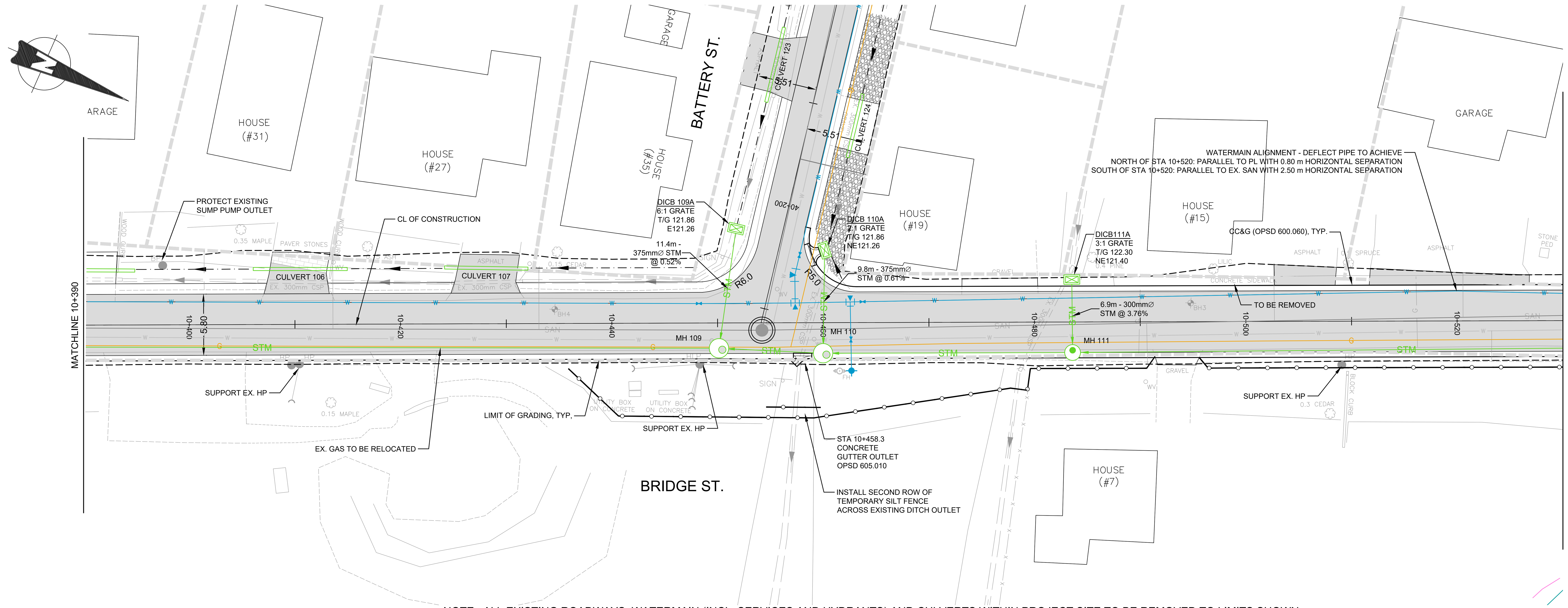
ODESSA WEST DRAINAGE IMPROVEMENTS

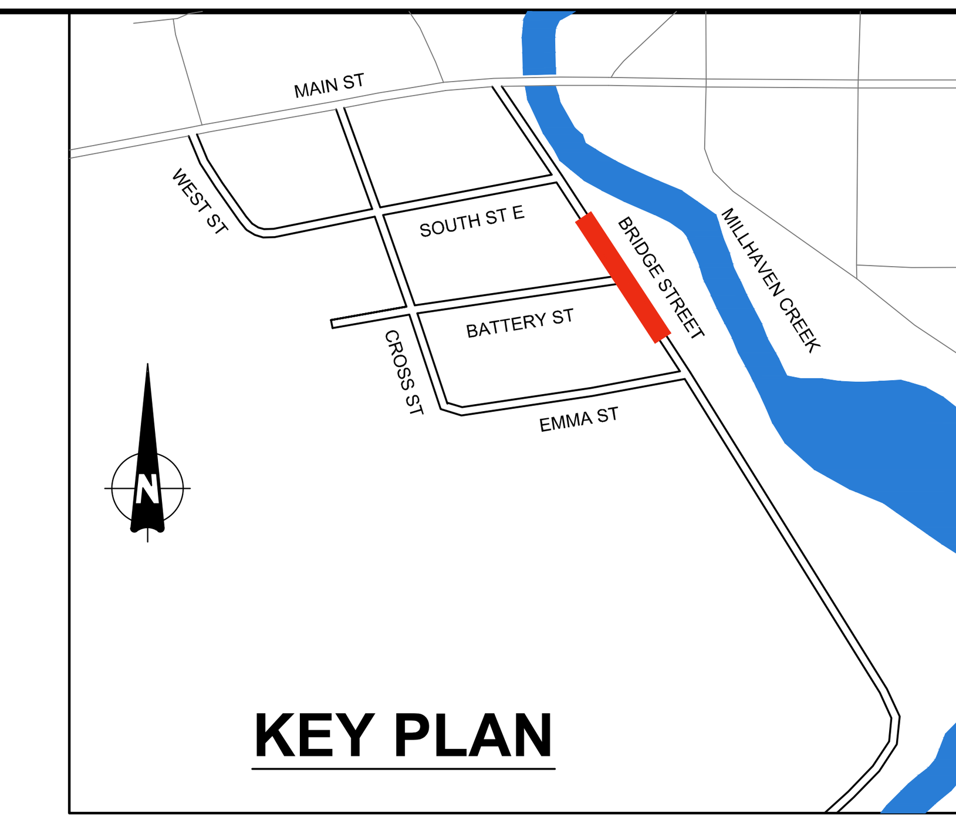
PLAN AND PROFILE - BRIDGE ST. STA 10+250 TO STA 10+390

Loyalist TOWNSHIP

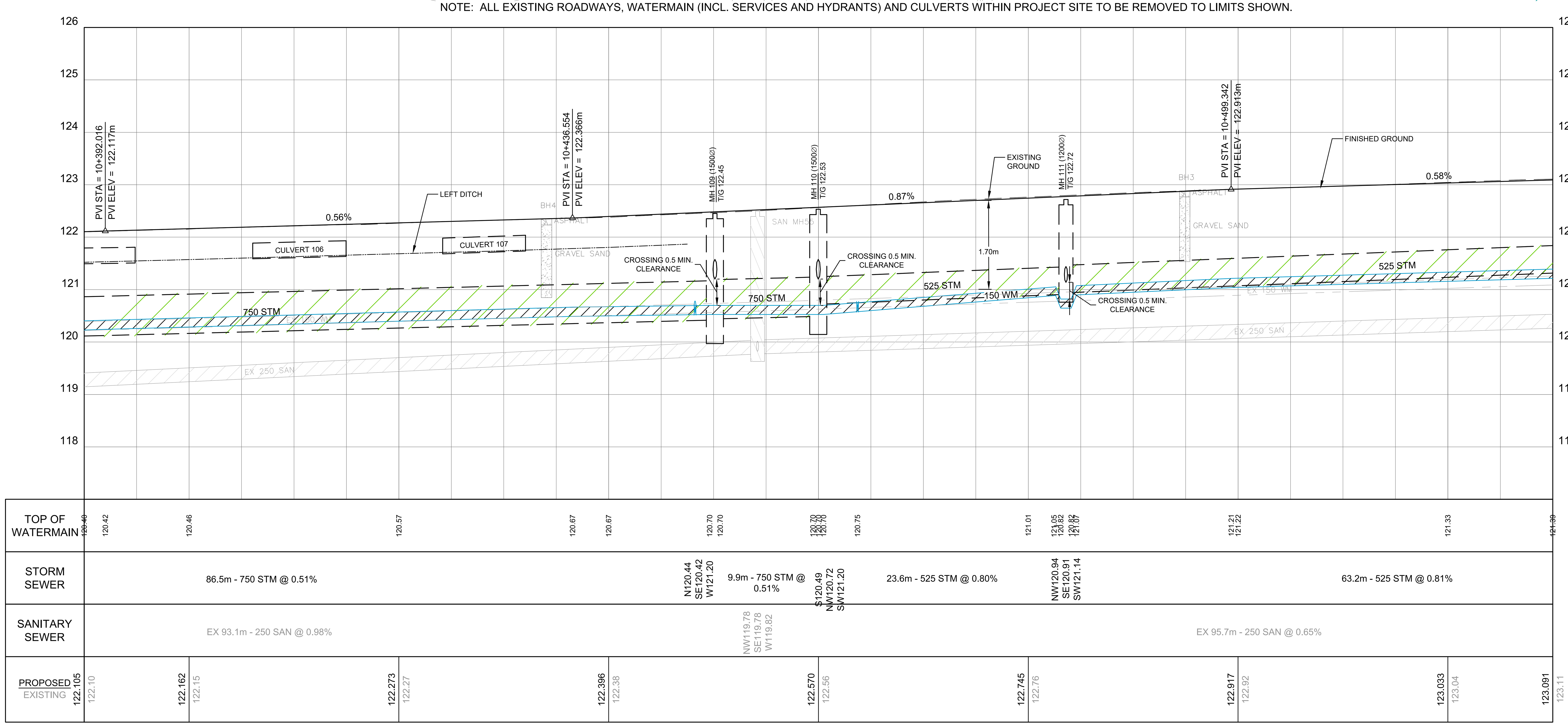
Consultant File No.	Drawing No.
18838-1	302

FILE NAME: K:\Projects\18838 - Odessa Drainage Study\18838-1 Project\Drawings_civil\layouts\18838-1 - Plan Profile_Bridge.dwg





NOTE: ALL EXISTING ROADWAYS, WATERMAIN (INCL. SERVICES AND HYDRANTS) AND CULVERTS WITHIN PROJECT SITE TO BE REMOVED TO LIMITS SHOWN.



No.	Date	By	Revision
6	2023.04.06	AW	ISSUED FOR TENDER
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4	2021.06.17	AW	FOR DISCUSSION PURPOSES
3	2020.06.05	EB	FINAL DESIGN REVIEW
2	2019.10.09	EB	PROGRESS SET
1	2019.01.25	EB	DRAFT SUBMISSION

Scale: (Scales below are for Ansi D Full Size Dwg.)

Horiz: 1:250 Vert: 1:50

Stamp

Stamp

Design	SR
Ch'kd	EB
Drawn	SR
Date	JUN 2020

Ainley GROUP CONSULTING ENGINEERS PLANNERS

ODESSA WEST DRAINAGE IMPROVEMENTS

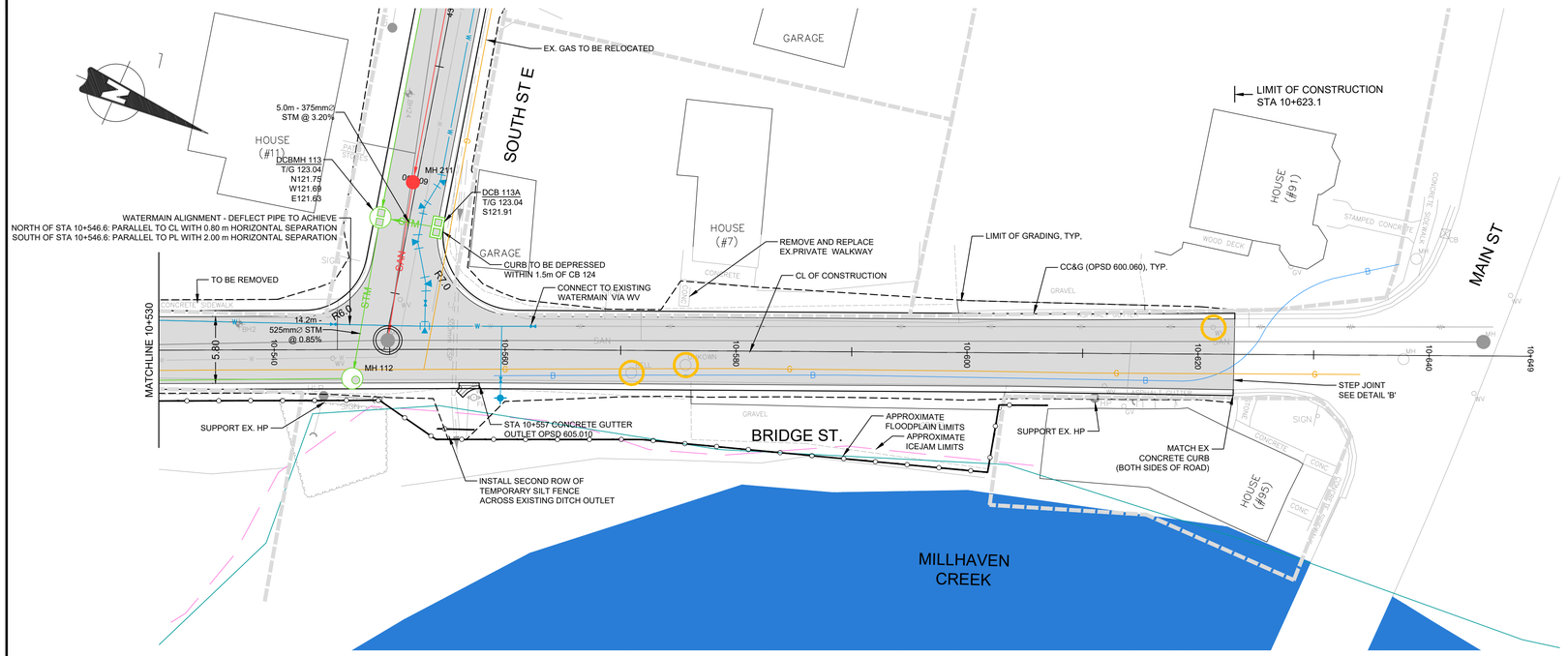
PLAN AND PROFILE - BRIDGE ST. STA 10+390 TO STA 10+530

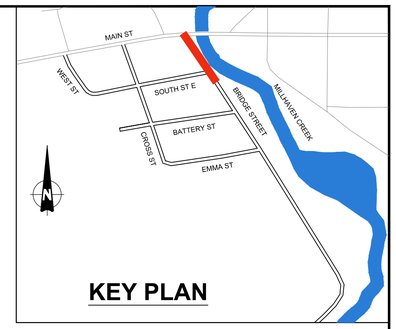
Loyalist TOWNSHIP

Consultant File No. **18838-1**

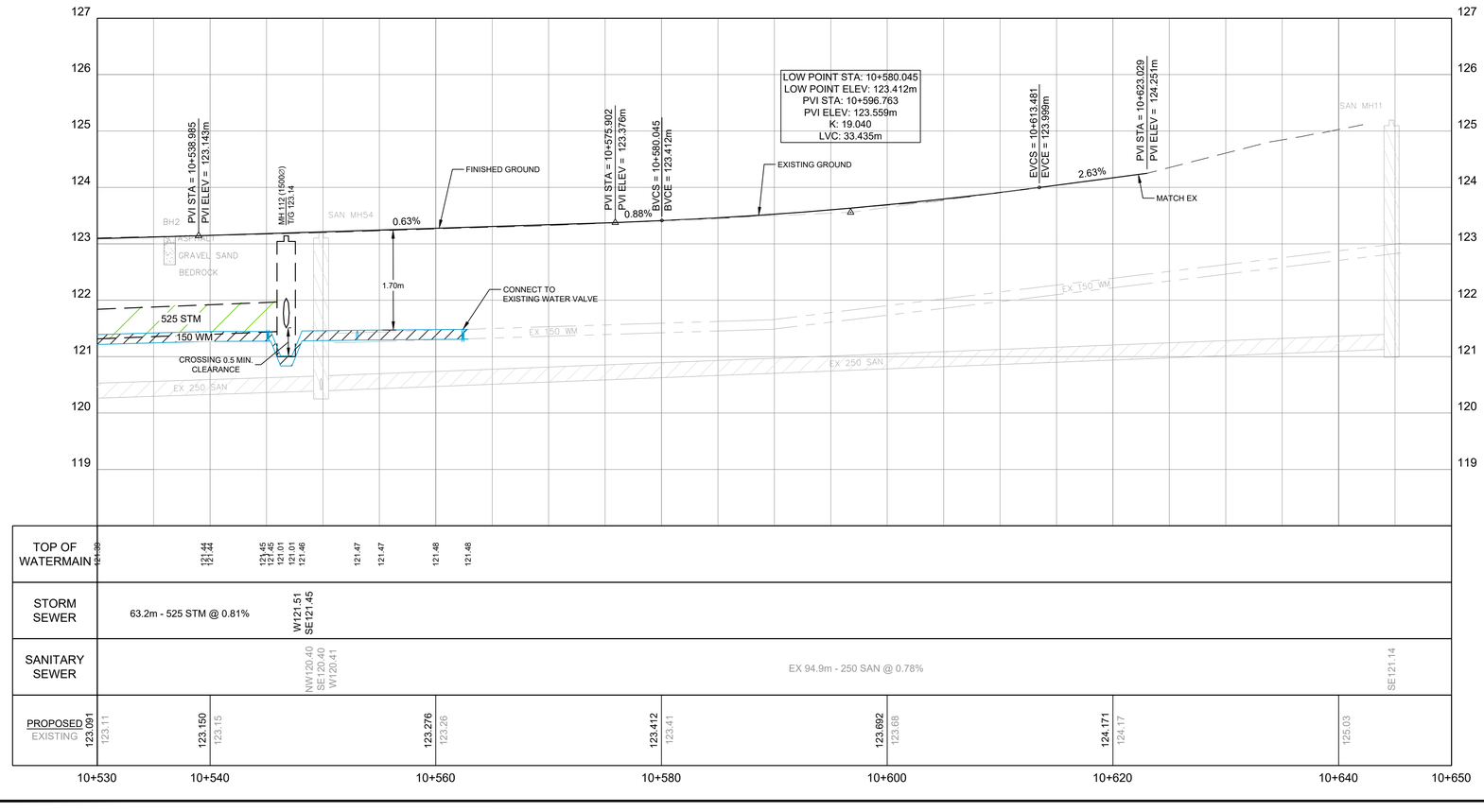
Drawing No. **303**

FILE NAME: K:\Projects\18838 - Odessa Drainage Study\18838-1 Project\Drawings_civil\layouts\18838-1 - Plan Profile_Bridge.dwg





NOTE: ALL EXISTING ROADWAYS, WATERMAIN (INCL. SERVICES AND HYDRANTS) AND CULVERTS WITHIN PROJECT SITE TO BE REMOVED TO LIMITS SHOWN.



No.	Date	By	Revision
6	2023.04.06	AW	ISSUED FOR TENDER
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4	2021.06.17	AW	FOR DISCUSSION PURPOSES
3	2020.06.05	EB	FINAL DESIGN REVIEW
2	2019.10.09	EB	PROGRESS SET
1	2019.01.25	EB	DRAFT SUBMISSION

Scale: (Scales below are for Ansi D Full Size Dwg.)

Horiz: 1:250 Vert: 1:50

Stamp	Stamp		
		Design	SR
		Ch'kd	EB
		Drawn	SR
		Date	JUN 2020

Mainley GROUP CONSULTING ENGINEERS PLANNERS

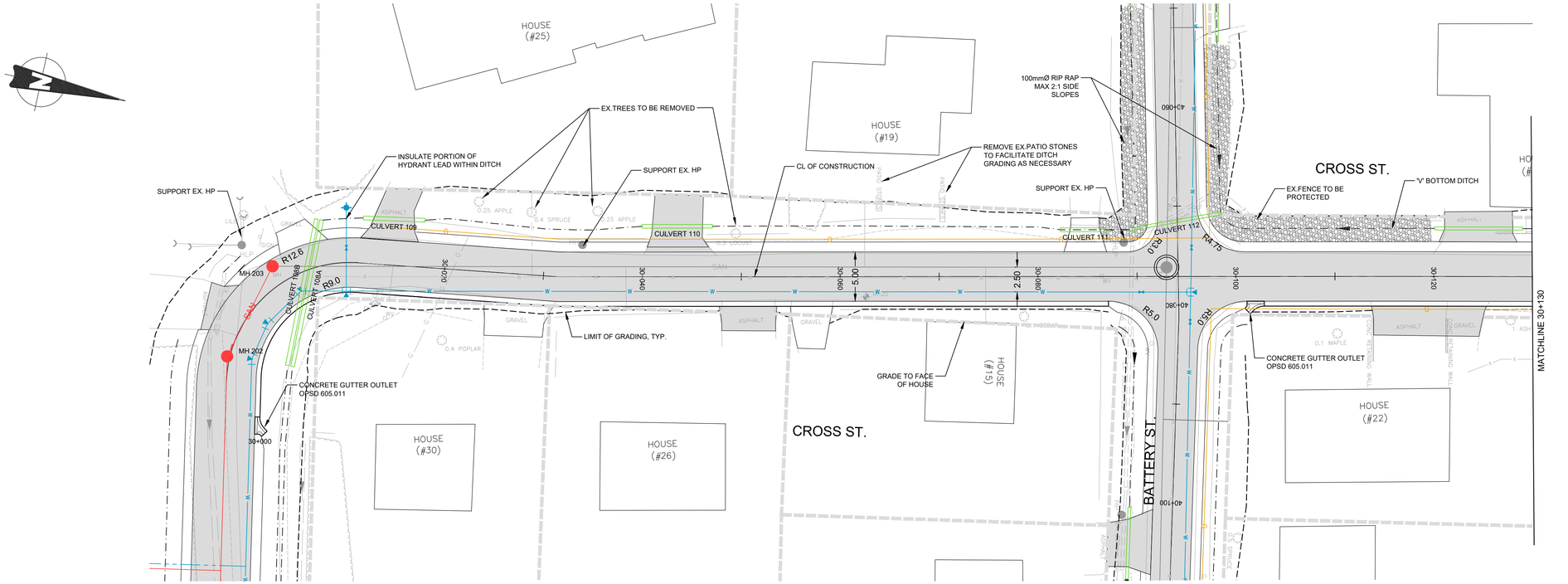
ODESSA WEST DRAINAGE IMPROVEMENTS

PLAN AND PROFILE - BRIDGE ST. STA 10+390 TO STA 10+390

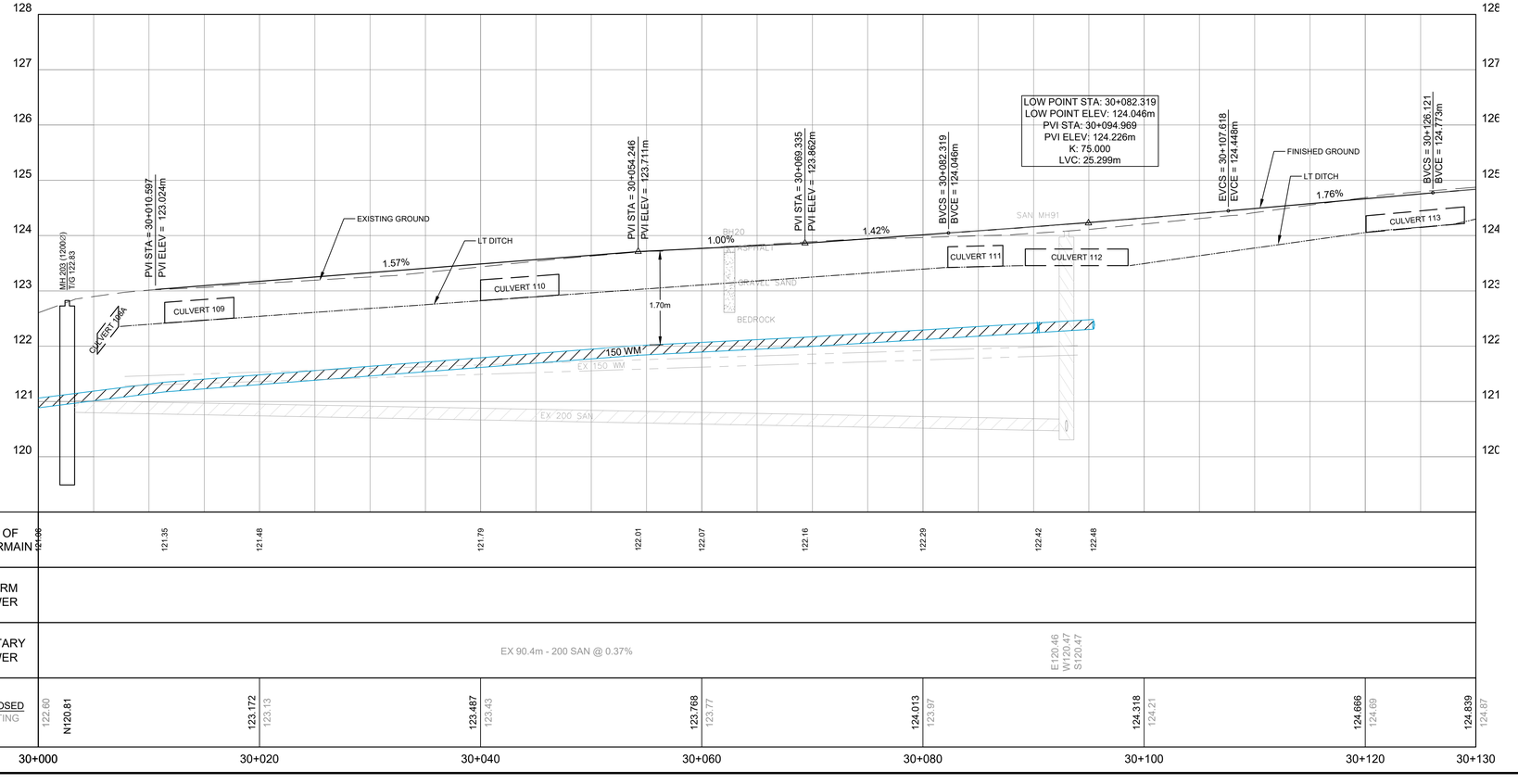
Loyalist TOWNSHIP

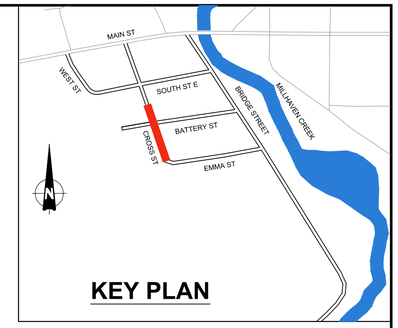
Consultant File No.	Drawing No.
18838-1	304

FILE NAME: K:\Projects\18838 - Odessa Drainage Study\18838-1 Project\Drawings_civil\layouts\18838-1 - Plan Profile_Bridge.dwg



NOTE: ALL EXISTING ROADWAYS, WATERMAIN (INCL. SERVICES AND HYDRANTS) AND CULVERTS WITHIN PROJECT SITE TO BE REMOVED TO LIMITS SHOWN.





No.	Date	By	Revision
6	2023.04.06	AW	ISSUED FOR TENDER
5	2022.07.22	AW	REVISED AS PER TOWNSHIP COMMENTS
4	2021.06.17	AW	FOR DISCUSSION PURPOSES
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1	2019.01.25	EB	DRAFT SUBMISSION

Scale: (Scales below are for Ansi D Full Size Dwg.)

Horiz: 1:250 Vert: 1:50

Stamp	Stamp		
		Design	SR
		Ch'kd	EB
		Drawn	SR
		Date	JUN 2020

Ainley GROUP CONSULTING ENGINEERS PLANNERS

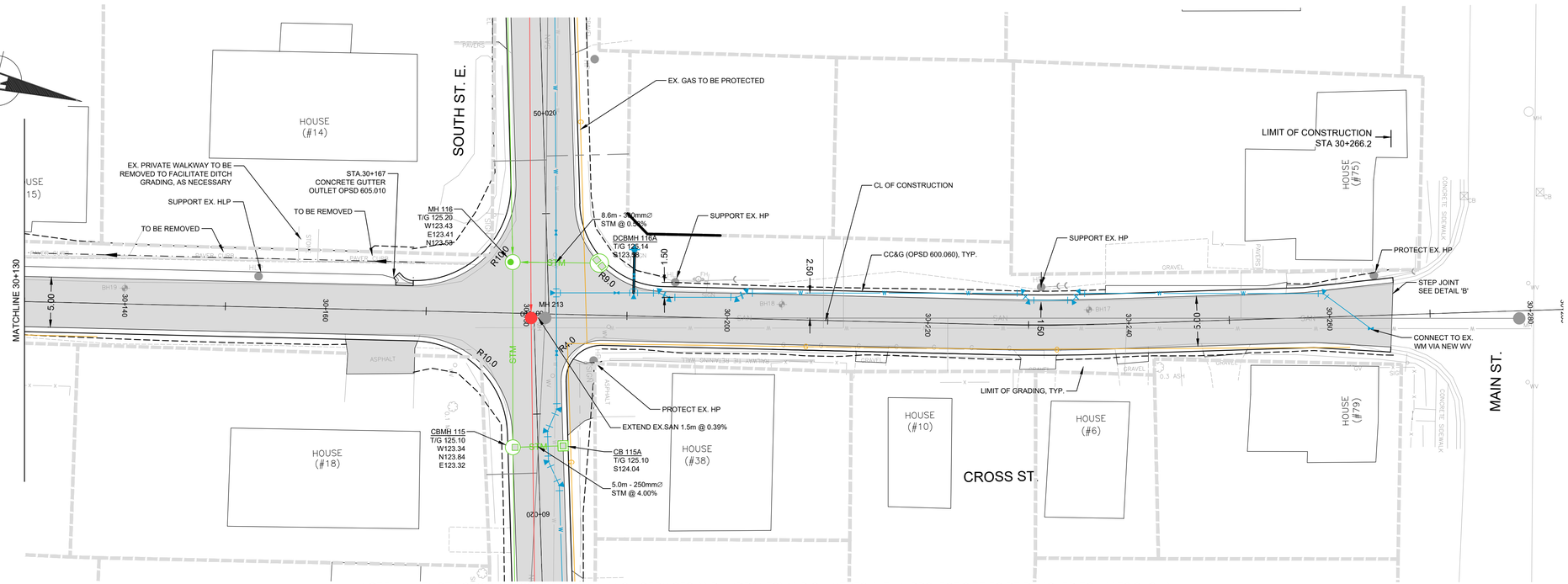
ODESSA WEST DRAINAGE IMPROVEMENTS

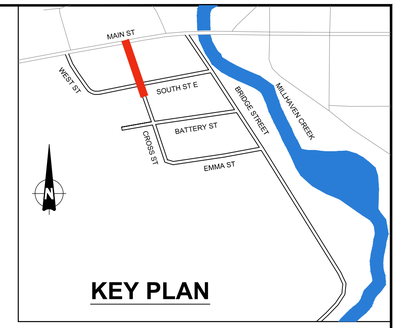
PLAN AND PROFILE - CROSS ST. STA. 30+010 TO STA. 30+130

Loyalist TOWNSHIP

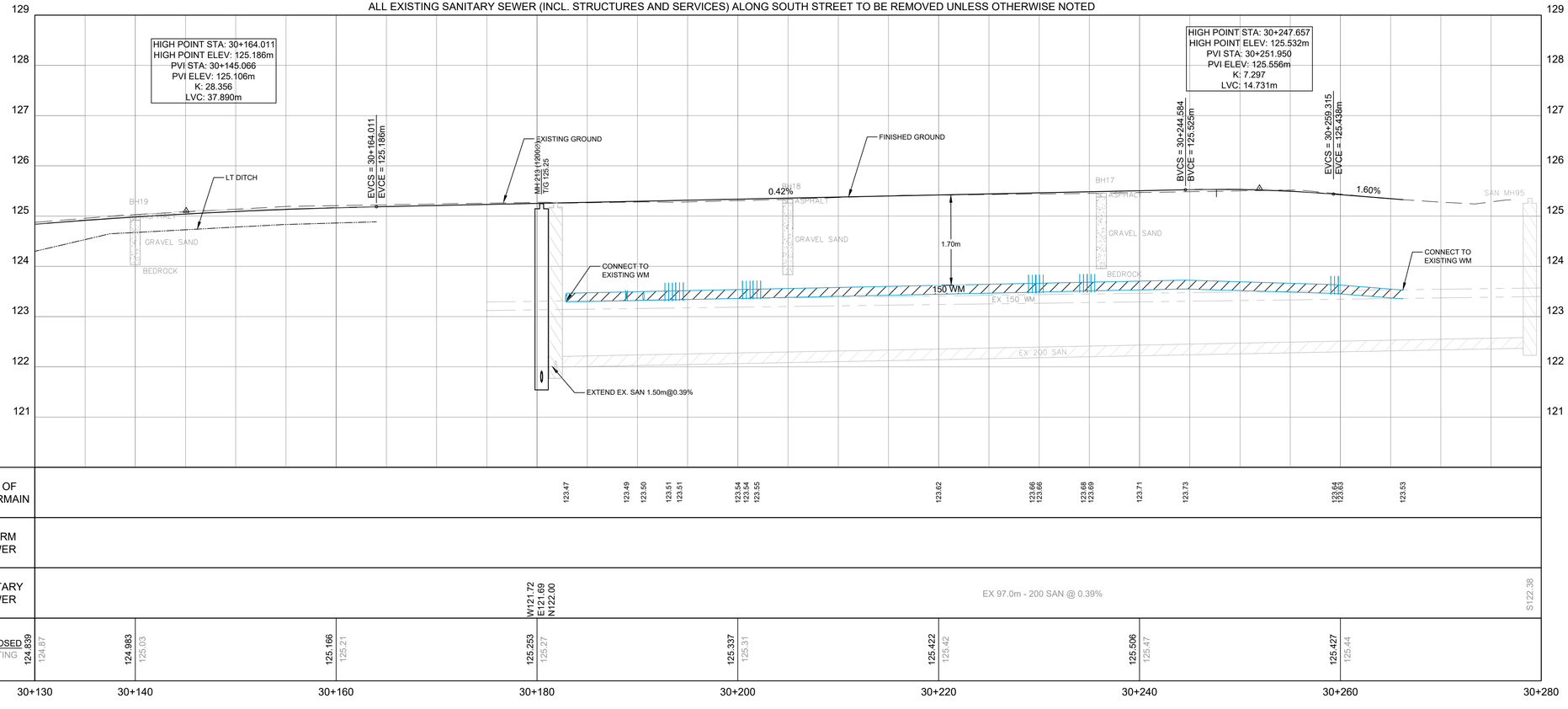
Consultant File No.	Drawing No.
18838-1	305

FILE NAME: K:\Projects\18838 - Odessa Drainage Study\18838-1 Project\Drawings_civil\layouts\18838-1 - Plan Profile_Cross.dwg





NOTE: ALL EXISTING ROADWAYS, WATERMAIN (INCL. SERVICES AND HYDRANTS) AND CULVERTS WITHIN PROJECT SITE TO BE REMOVED TO LIMITS SHOWN.
ALL EXISTING SANITARY SEWER (INCL. STRUCTURES AND SERVICES) ALONG SOUTH STREET TO BE REMOVED UNLESS OTHERWISE NOTED



TOP OF WATERMAIN	123.47 · 123.49 · 123.50 · 123.51 · 123.51 · 123.54 · 123.54 · 123.55 · 123.62 · 123.66 · 123.66 · 123.68 · 123.69 · 123.71 · 123.73 · 123.64 · 123.63 · 123.53
STORM SEWER	
SANITARY SEWER	W121.72 E121.69 N122.00 · EX 97.0m - 200 SAN @ 0.39% · S122.38
PROPOSED 124.839 / EXISTING 124.87	124.983 / 125.03 · 125.166 / 125.21 · 125.253 / 125.27 · 125.337 / 125.31 · 125.422 / 125.42 · 125.506 / 125.47 · 125.427 / 125.44
	30+130 · 30+140 · 30+160 · 30+180 · 30+200 · 30+220 · 30+240 · 30+260 · 30+280

No.	Date	By	Revision
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1	2019.01.25	EB	DRAFT SUBMISSION

Scale: (Scales below are for Ansi D Full Size Dwg.)

Horiz: 1:250 Vert: 1:50

Stamp	Stamp		
		Design	SR
		Ch'kd	EB
		Drawn	SR
		Date	JUN 2020

Minley GROUP CONSULTING ENGINEERS PLANNERS

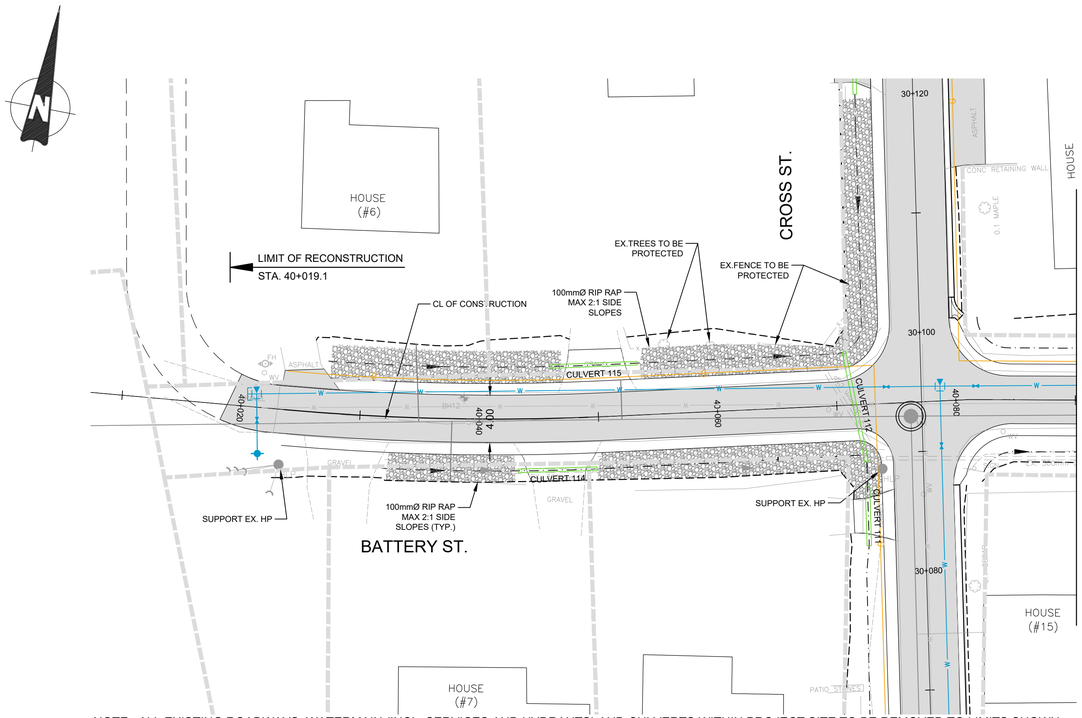
ODESSA WEST DRAINAGE IMPROVEMENTS

PLAN AND PROFILE - CROSS ST. STA. 30+130 TO STA. 30+280

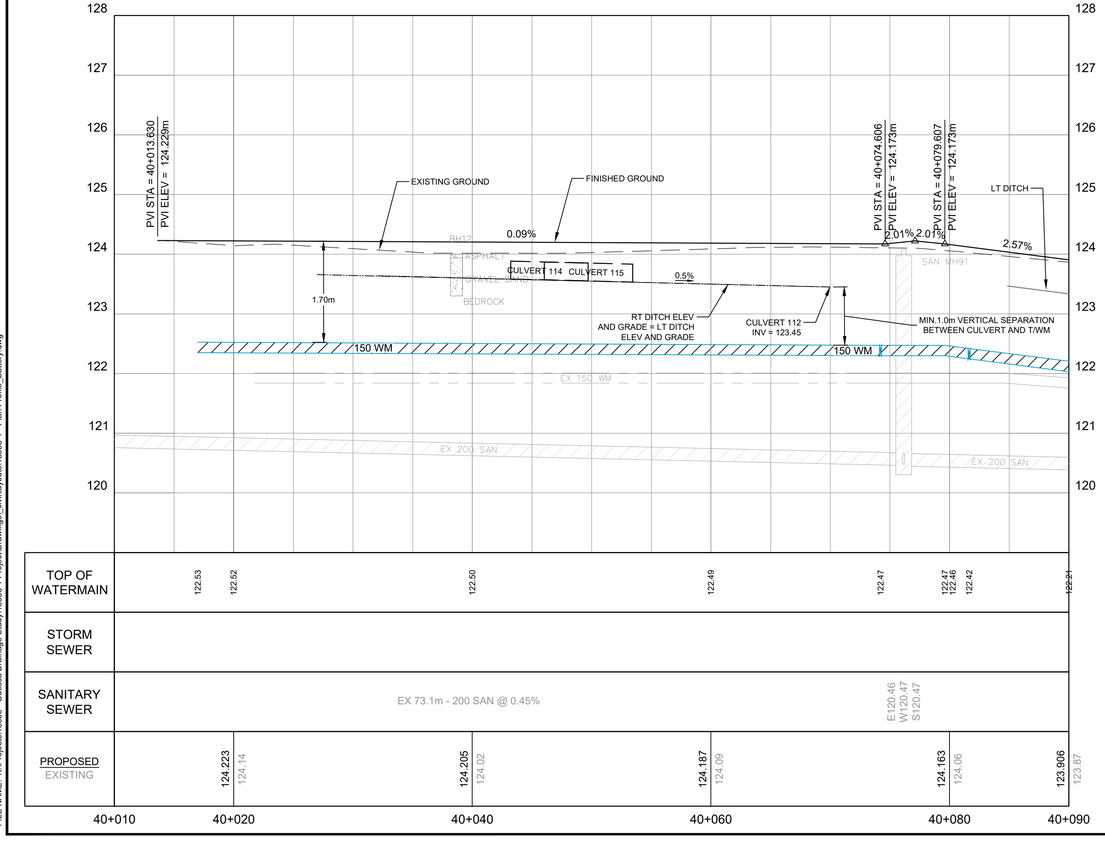
Loyalist TOWNSHIP

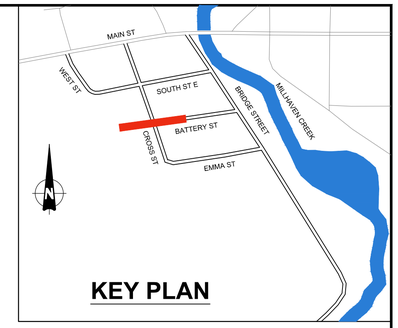
Consultant File No.	Drawing No.
18838-1	306

FILE NAME: K:\Projects\18838 - Odessa Drainage Study\18838-1 Project\Drawings_civil\layouts\18838-1 - Plan Profile_Cross.dwg



NOTE: ALL EXISTING ROADWAYS, WATERMAIN (INCL. SERVICES AND HYDRANTS) AND CULVERTS WITHIN PROJECT SITE TO BE REMOVED TO LIMITS SHOWN.





No.	Date	By	Revision
6	2023.04.06	AW	ISSUED FOR TENDER
5	2022.07.22	AW	REVISED AS PER TOWNSHIP COMMENTS
4	2021.06.17	AW	FOR DISCUSSION PURPOSES
3	2020.06.05	EB	FINAL DESIGN REVIEW
2	2019.10.09	EB	PROGRESS SET
1	2019.01.25	EB	DRAFT SUBMISSION

Scale: (Scales below are for Ansi D Full Size Dwg.)

Horiz: 1:250 Vert: 1:50

Stamp	Stamp		
		Design	SR
		Ch'kd	EB
		Drawn	SR
		Date	JUN 2020

CONSULTING ENGINEERS PLANNERS

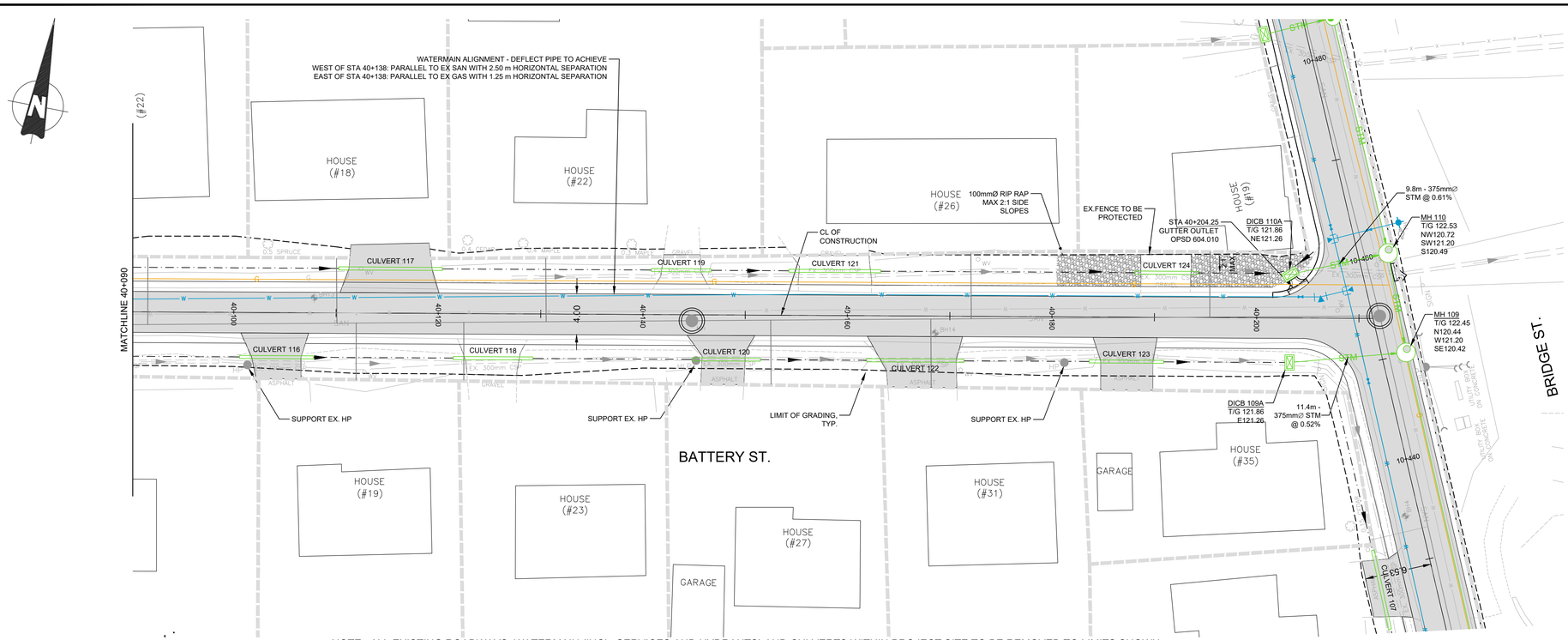
ODESSA WEST DRAINAGE IMPROVEMENTS

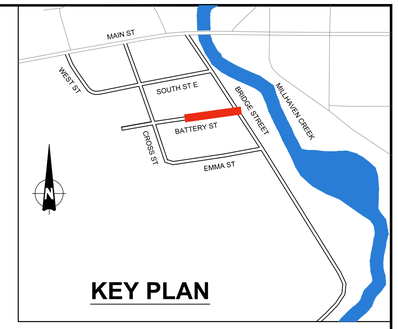
PLAN AND PROFILE - BATTERY ST. STA. 40+023 TO STA. 40+090

Consultant File No. 18838-1

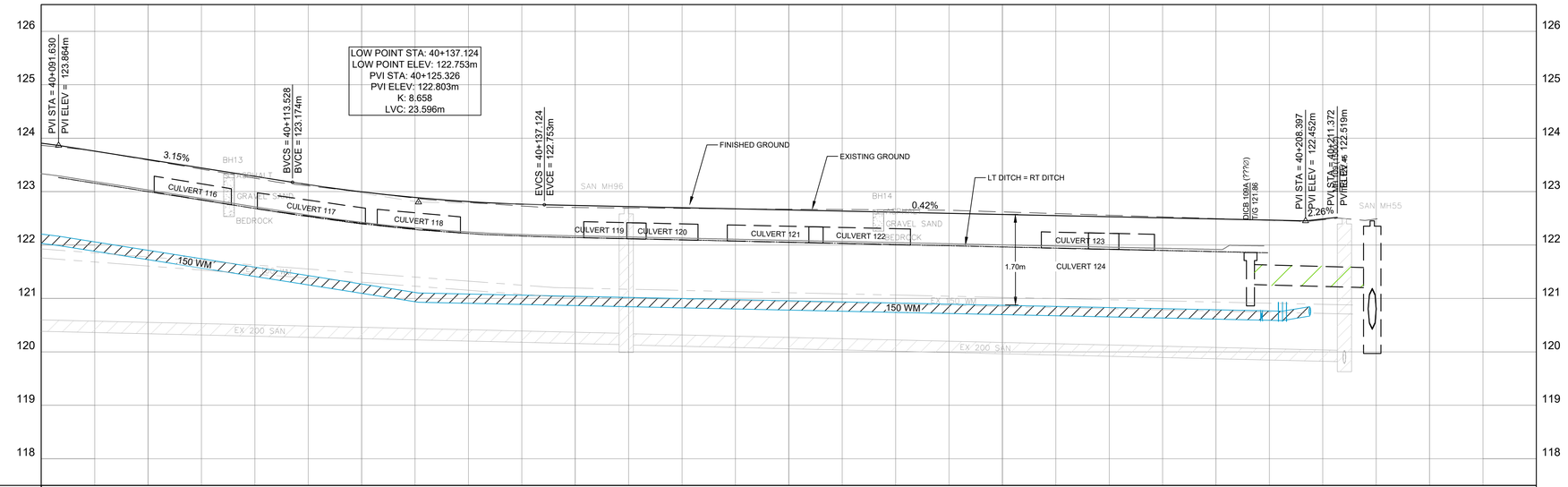
Drawing No. 307

FILE NAME: K:\Projects\18838 - Odessa Drainage Study\18838-1 Project\Drawings_civil\layouts\18838-1 - Plan Profile_Battery.dwg





NOTE: ALL EXISTING ROADWAYS, WATERMAIN (INCL. SERVICES AND HYDRANTS) AND CULVERTS WITHIN PROJECT SITE TO BE REMOVED TO LIMITS SHOWN.



TOP OF WATERMAIN	122.24	122.16	121.90	121.27	121.10	121.04	120.96	120.87	120.79	120.76	120.85
STORM SEWER									E121.26	11.4m - 375 STM @ 0.52%	N120.44 SE120.42 W121.20
SANITARY SEWER	EX 68.6m - 200 SAN @ 0.46%				W120.14 E120.14		EX 67.3m - 200 SAN @ 0.47%			NW119.78 SE119.78 W119.82	
PROPOSED	123.906	123.600	122.995	122.741	122.656	122.572	122.487	
EXISTING	123.87	123.59	122.99	122.70	122.67	122.62	122.49	

40+090 | 40+100 | 40+120 | 40+140 | 40+160 | 40+180 | 40+200 | 40+220 | 40+230

No.	Date	By	Revision
6	2023.04.06	AW	ISSUED FOR TENDER
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2	2019.10.09	EB	PROGRESS SET
1	2019.01.25	EB	DRAFT SUBMISSION

Scale: (Scales below are for Ansi D Full Size Dwg.)

Horiz: 1:250 Vert: 1:50

Stamp	Stamp		
		Design	SR
		Ch'kd	EB
		Drawn	SR
		Date	JUN 2020

Ainley GROUP CONSULTING ENGINEERS PLANNERS

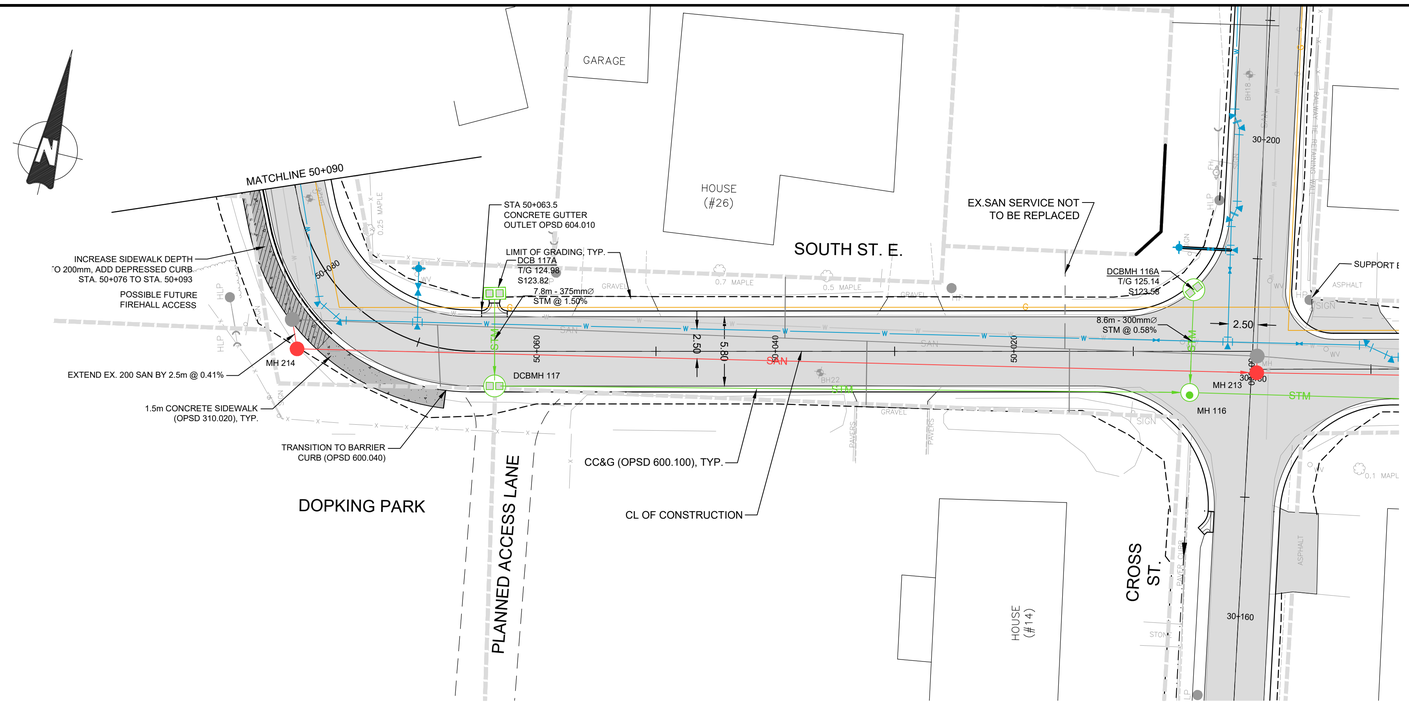
ODESSA WEST DRAINAGE IMPROVEMENTS

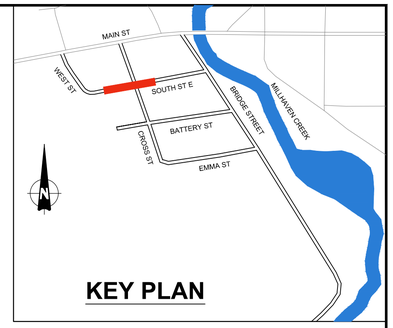
PLAN AND PROFILE - BATTERY ST. STA. 40+090 TO STA. 40+230

Loyalist TOWNSHIP

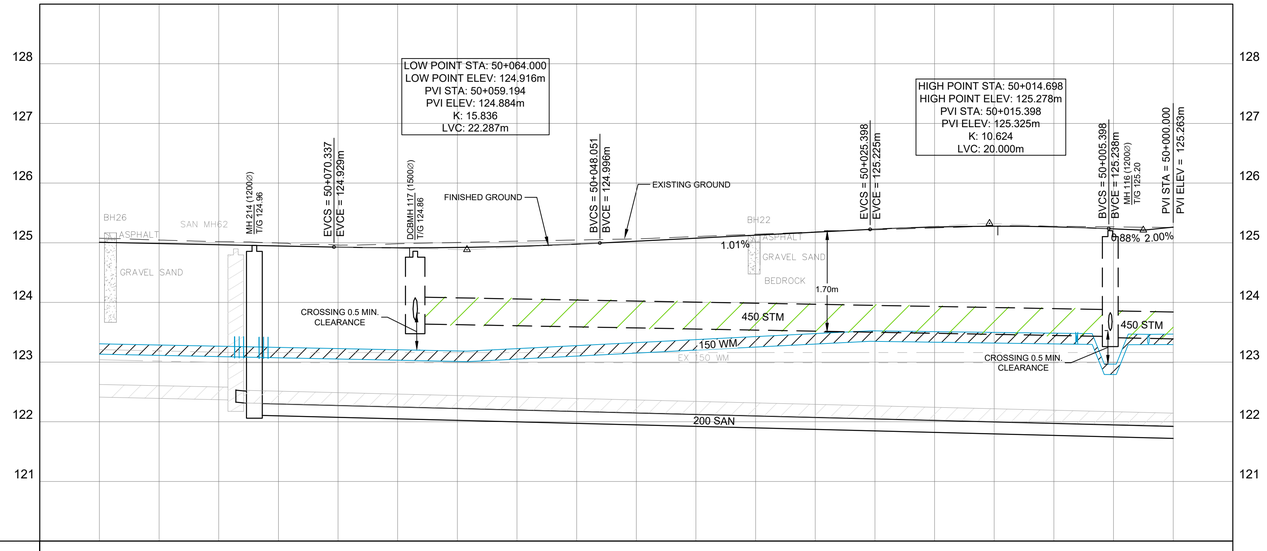
Consultant File No.	Drawing No.
18838-1	308

FILE NAME: K:\Projects\18838 - Odessa Drainage Study\18838-1 Project\Drawings_civil\layouts\18838-1 - Plan Profile_Battery.dwg





NOTE: ALL EXISTING ROADWAYS, WATERMAIN (INCL. SERVICES AND HYDRANTS) AND CULVERTS WITHIN PROJECT SITE TO BE REMOVED TO LIMITS SHOWN.
ALL EXISTING SANITARY SEWER (INCL. STRUCTURES AND SERVICES) ALONG SOUTH STREET TO BE REMOVED UNLESS OTHERWISE NOTED



TOP OF WATERMAIN	123.31	123.27 123.26 123.25	123.19 123.18
STORM SEWER		N123.70 E123.64	58.3m - 450 STM @ 0.36%
SANITARY SEWER	EX 61.0m - 200 SAN @ 0.41%	E122.33 NW122.37	NW122.30 E122.11
PROPOSED	125.008	124.967	124.921
EXISTING	125.08	125.02	125.01

TOP OF WATERMAIN	123.38	123.52	123.51	123.46 123.48 122.97 122.97 123.47 123.47	123.47
STORM SEWER				W123.43 E123.41 N123.53	18.5m - 450 STM @ 0.38%
SANITARY SEWER	80.4m - 200 SAN @ 0.48%				
PROPOSED	125.078	125.265			125.263
EXISTING	125.10	125.25			125.26

50+090 50+080 50+060 50+040 50+020 50+000

No.	Date	By	Revision
6	2023.04.06	AW	ISSUED FOR TENDER
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Scale: (Scales below are for Ansi D Full Size Dwg.)

Horiz: 1:250 Vert: 1:50

Stamp	Stamp		
		Design	SR
		Ch'kd	EB
		Drawn	SR
		Date	JUN 2020

Ainley GROUP CONSULTING ENGINEERS PLANNERS

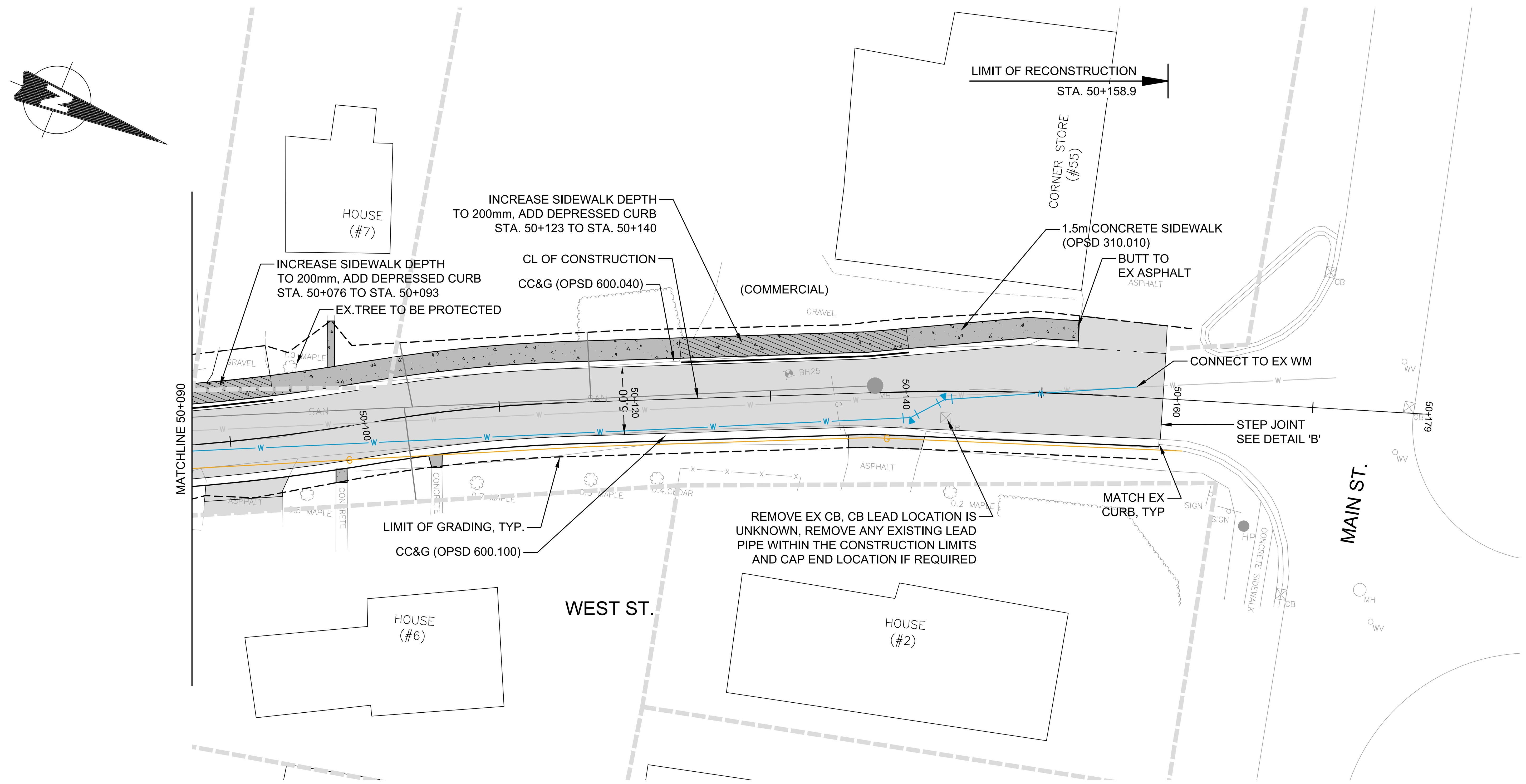
ODESSA WEST DRAINAGE IMPROVEMENTS

PLAN AND PROFILE - SOUTH ST. E. STA. 50+000 TO STA. 50+090

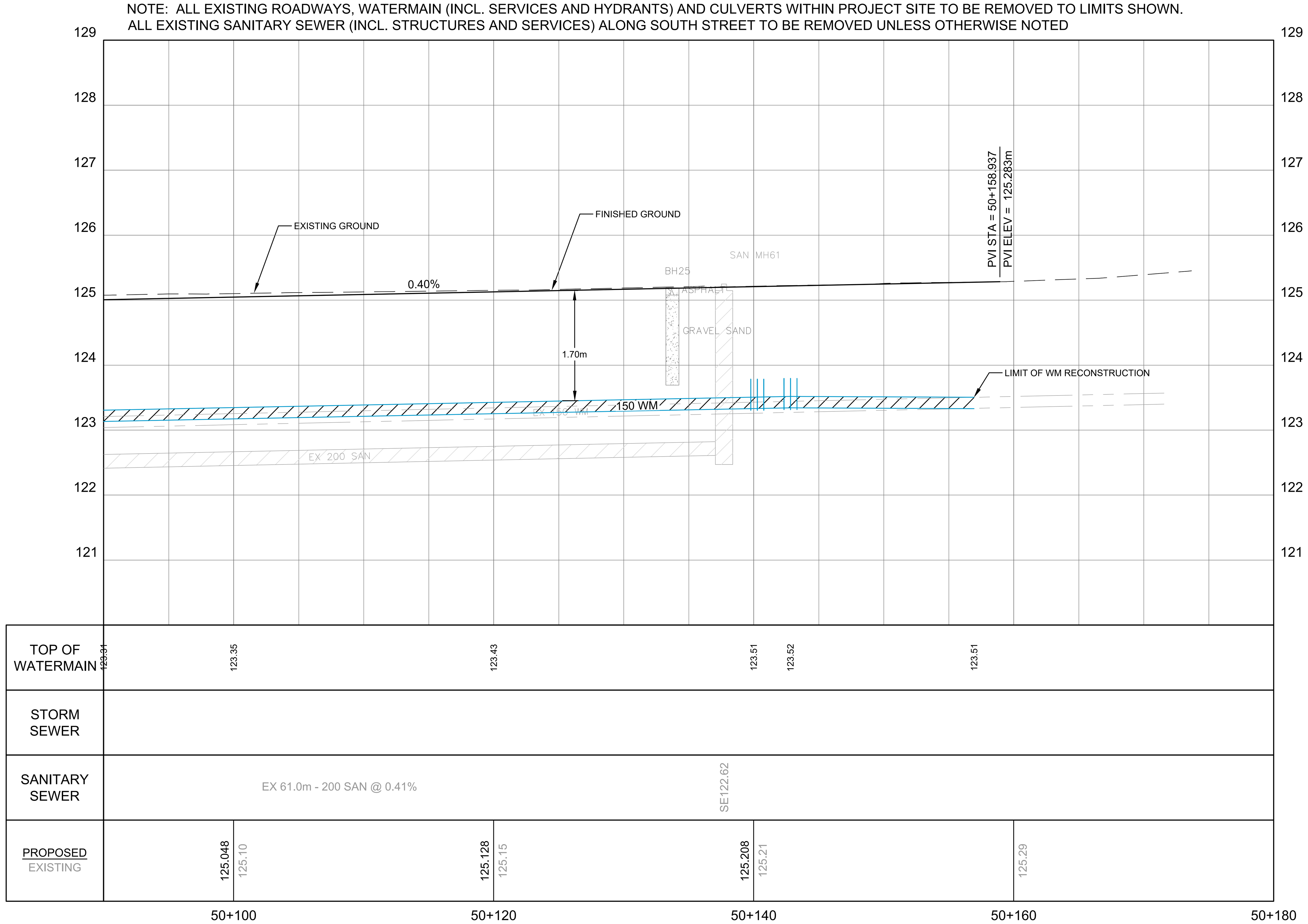
Loyalist TOWNSHIP

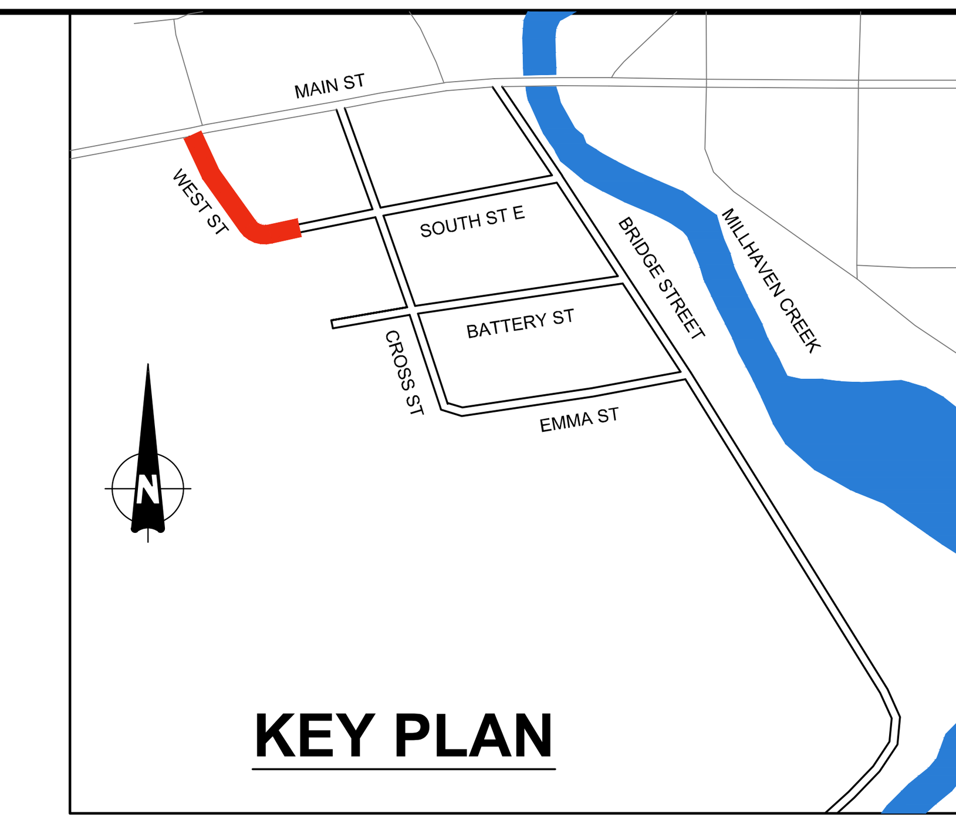
Consultant File No.	Drawing No.
18838-1	309

FILE NAME: K:\Projects\18838 - Odessa Drainage Study\18838-1 Project\Drawings_civil\layouts\18838-1 - Plan Profile_South.dwg



NOTE: ALL EXISTING ROADWAYS, WATERMAIN (INCL. SERVICES AND HYDRANTS) AND CULVERTS WITHIN PROJECT SITE TO BE REMOVED TO LIMITS SHOWN.
ALL EXISTING SANITARY SEWER (INCL. STRUCTURES AND SERVICES) ALONG SOUTH STREET TO BE REMOVED UNLESS OTHERWISE NOTED





No.	Date	By	Revision
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Scale: (Scales below are for Ansi D Full Size Dwg.)

Horiz: 1:250 Vert: 1:50

Stamp

Stamp

Design	SR
Ch'kd	EB
Drawn	SR
Date	JUN 2020

Ainley GROUP CONSULTING ENGINEERS PLANNERS

ODESSA WEST DRAINAGE IMPROVEMENTS

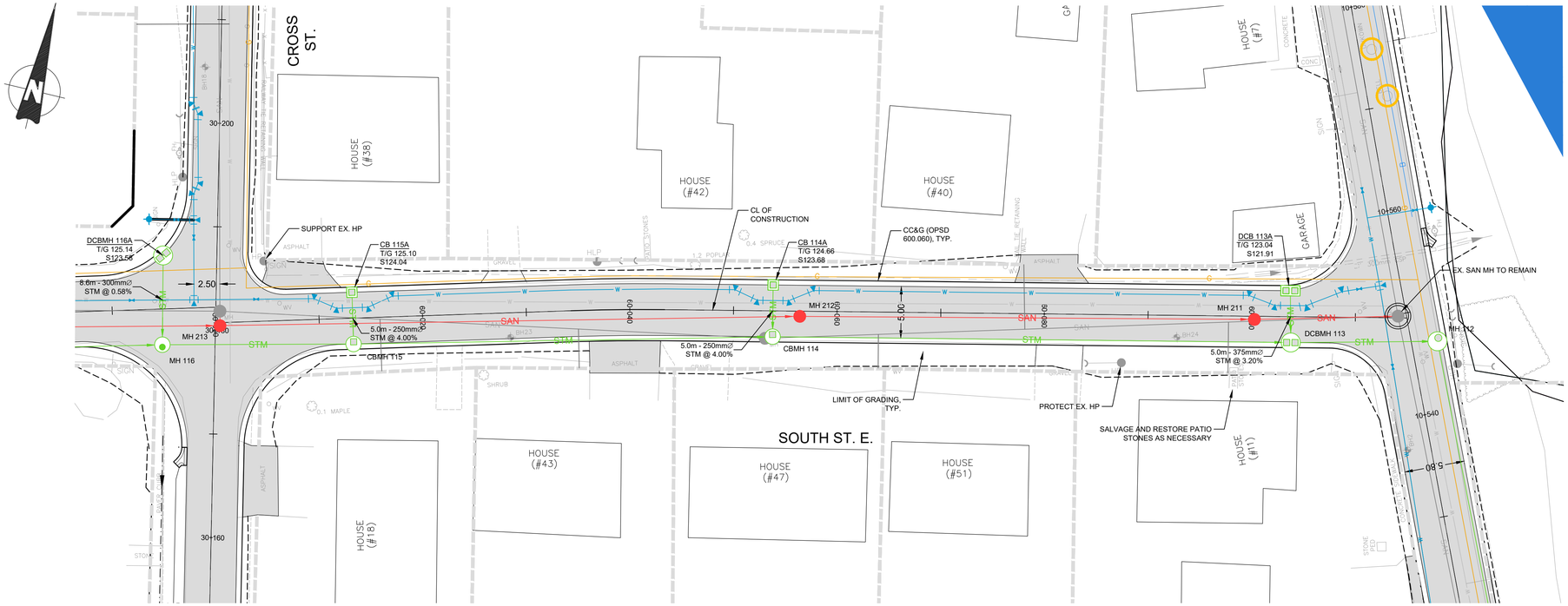
PLAN AND PROFILE - WEST ST. STA. 50+090 TO STA. 50+172.2

Loyalist TOWNSHIP

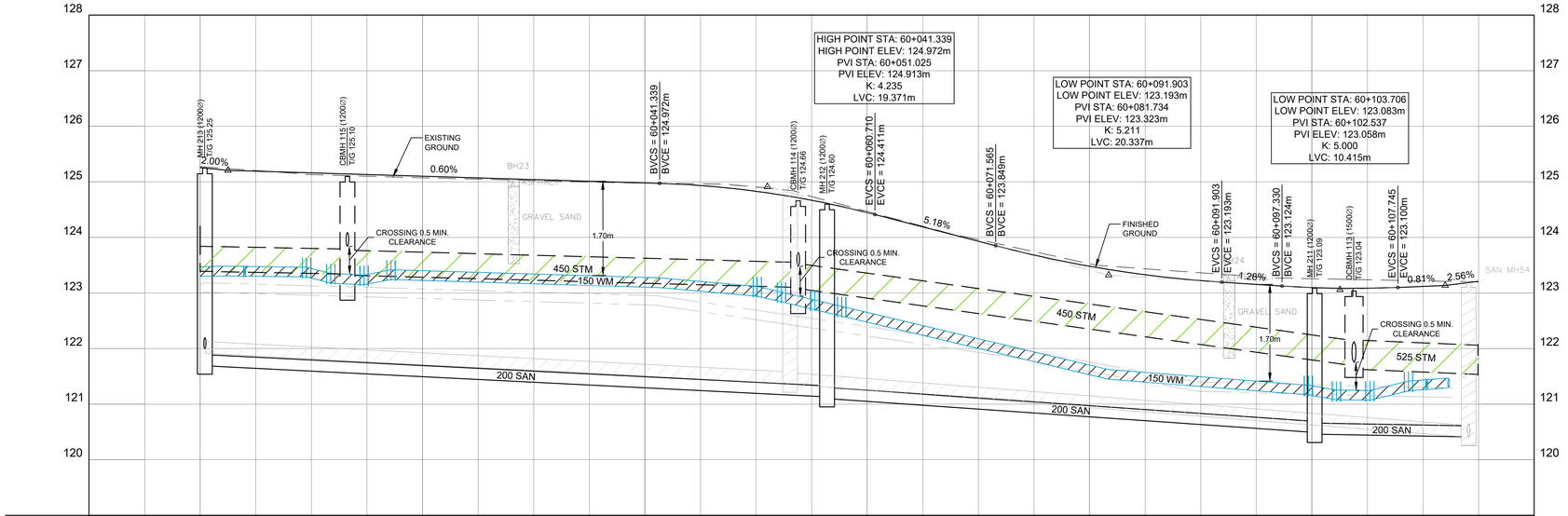
Consultant File No. **18838-1**

Drawing No. **310**

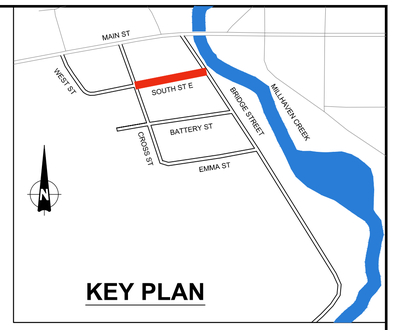
FILE NAME: K:\Projects\18838 - Odessa Drainage Study\18838-1 Project\Drawings_civil\layouts\18838-1 - Plan Profile_West.dwg



NOTE: ALL EXISTING ROADWAYS, WATERMAIN (INCL. SERVICES AND HYDRANTS) AND CULVERTS WITHIN PROJECT SITE TO BE REMOVED TO LIMITS SHOWN.



	TOP OF WATERMAIN	STORM SEWER	SANITARY SEWER	PROPOSED / EXISTING
59+990	123.47 / 123.48		W121.72 E121.49 N122.00	125.256 / 125.27
60+000	123.46 / 123.35 / 123.32 / 123.42 / 123.40	18.5m - 450 STM @ 0.38%		
60+020	123.28 / 123.27	W123.34 N123.84 E123.32	55.9m - 200 SAN @ 1.00%	125.100 / 125.07
60+040	123.12 / 123.02 / 122.87 / 122.76 / 122.65	40.4m - 450 STM @ 0.54%		124.980 / 124.98
60+060		E123.08 W123.10 N123.48	W121.13 E121.10	124.448 / 124.47
60+080	121.70 / 121.62	50.0m - 450 STM @ 2.78%	43.9m - 200 SAN @ 1.39%	123.481 / 123.53
60+100	121.34 / 121.33 / 121.25 / 121.25 / 121.41 / 121.47	N121.75 W121.69 E121.63 14.2m - 525 STM @ 0.85%	W120.49 E120.46 13.9m - 200 SAN @ 0.36%	123.097 / 123.26
60+120			W120.41 N120.40 S120.40 W120.41	



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1	2019.01.25	EB	DRAFT SUBMISSION

Scale: (Scales below are for Ansi D Full Size Dwg.)

Horiz: 1:250 Vert: 1:50

Stamp

Stamp

Design	SR
Ch'kd	EB
Drawn	SR
Date	JUN 2020

Mainley GROUP CONSULTING ENGINEERS PLANNERS

ODESSA WEST DRAINAGE IMPROVEMENTS

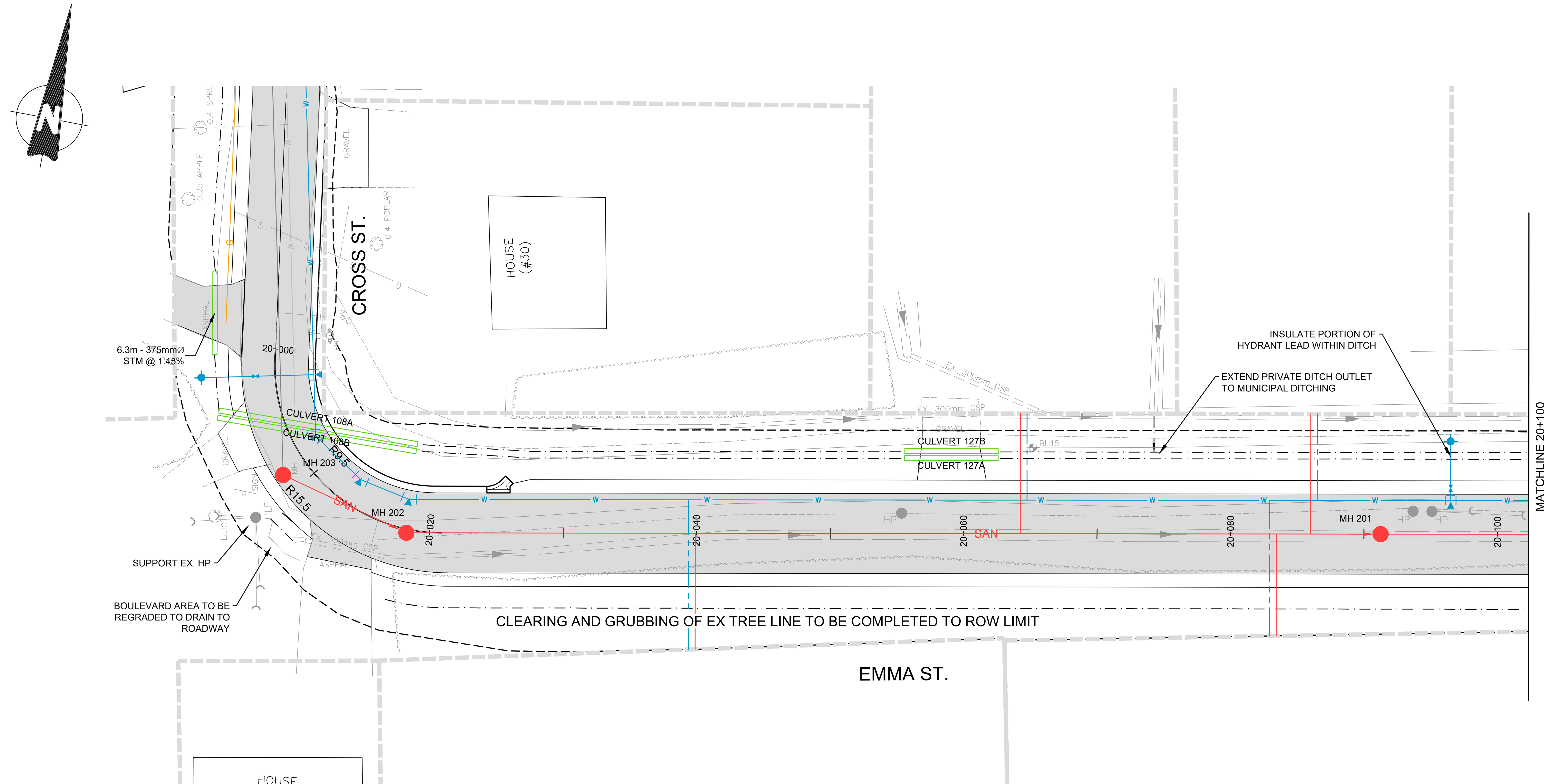
PLAN AND PROFILE - SOUTH ST. E. STA. 60+000 TO STA. 60+130

Loyalist TOWNSHIP

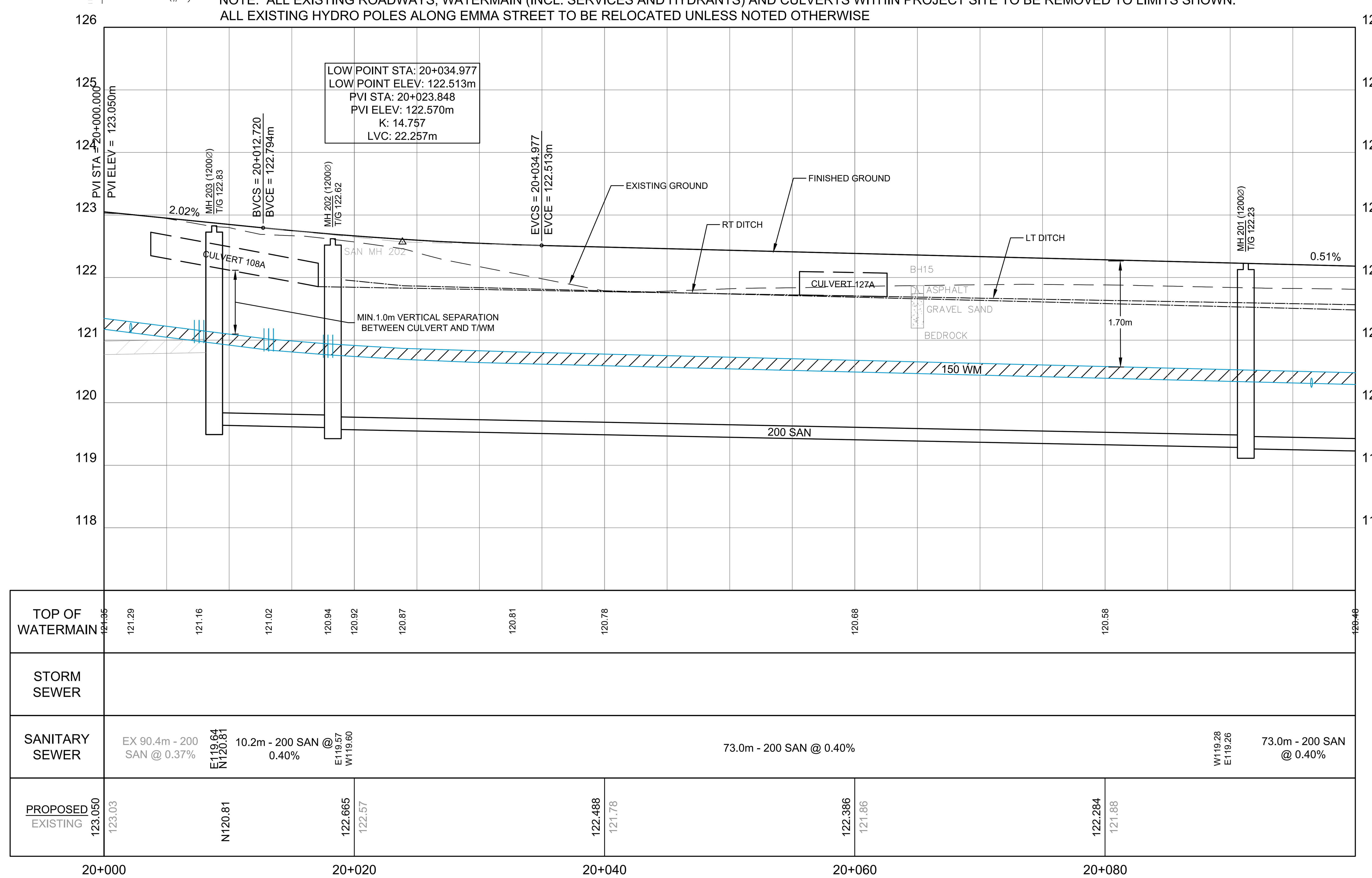
Consultant File No. 18838-1

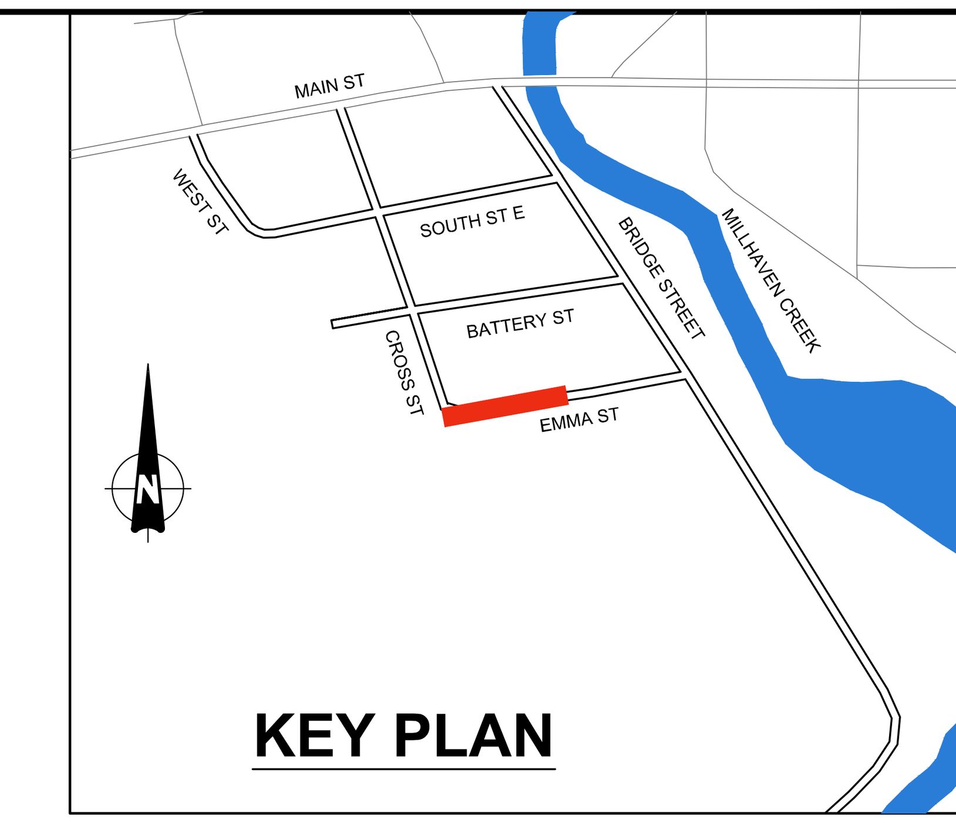
Drawing No. 311

FILE NAME: K:\Projects\18838 - Odessa Drainage Study\18838-1 Project\Drawings_civil\layouts\18838-1 - Plan Profile_South.dwg



NOTE: ALL EXISTING ROADWAYS, WATERMAIN (INCL. SERVICES AND HYDRANTS) AND CULVERTS WITHIN PROJECT SITE TO BE REMOVED TO LIMITS SHOWN.
ALL EXISTING HYDRO POLES ALONG EMMA STREET TO BE RELOCATED UNLESS NOTED OTHERWISE





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Scale: (Scales below are for Ansi D Full Size Dwg.)

Horiz: 1:250 Vert: 1:50

Stamp

Stamp

Design	SR
Ch'kd	EB
Drawn	SR
Date	JUN 2020

Ainley GROUP CONSULTING ENGINEERS PLANNERS

ODESSA WEST DRAINAGE IMPROVEMENTS

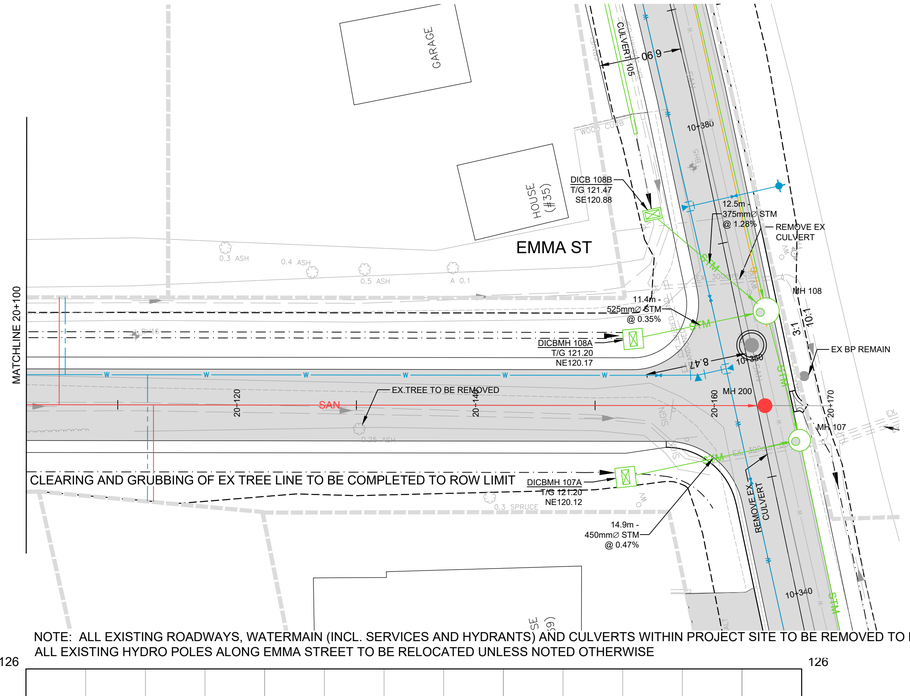
PLAN AND PROFILE - EMMA ST. E. STA. 20+000 TO STA. 20+100

Loyalist TOWNSHIP

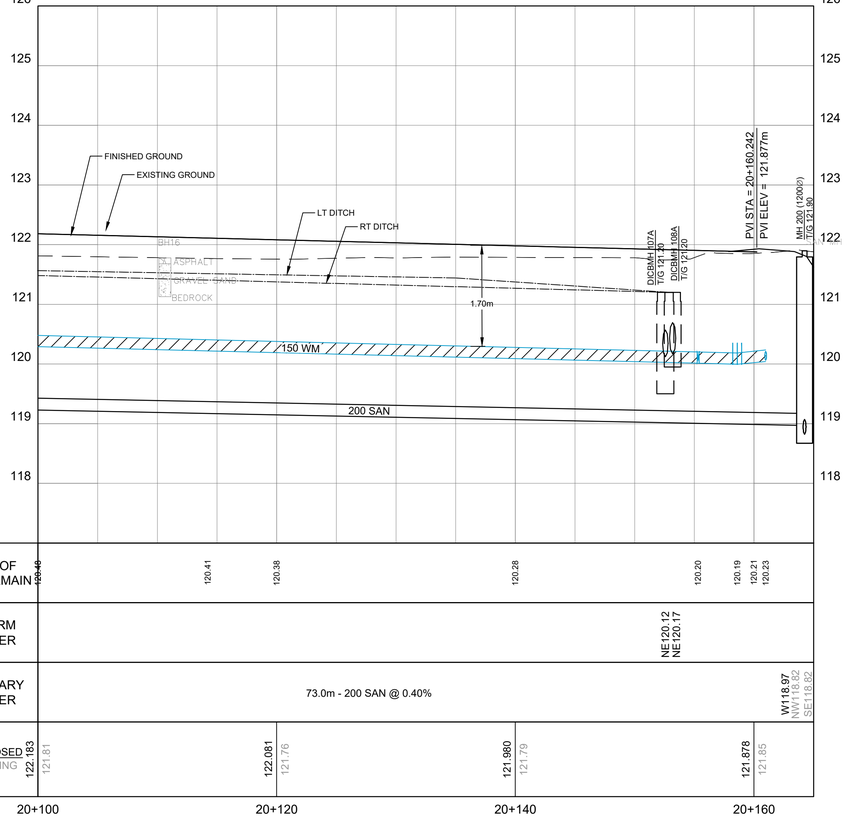
Consultant File No. **18838-1**

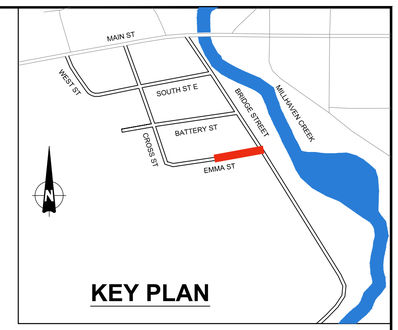
Drawing No. **312**

FILE NAME: K:\Projects\18838 - Odessa Drainage Study\18838-1 Project\Drawings_civil\layouts\18838-1 - Plan Profile_Emma.dwg



NOTE: ALL EXISTING ROADWAYS, WATERMAIN (INCL. SERVICES AND HYDRANTS) AND CULVERTS WITHIN PROJECT SITE TO BE REMOVED TO LIMITS SHOWN.
ALL EXISTING HYDRO POLES ALONG EMMA STREET TO BE RELOCATED UNLESS NOTED OTHERWISE





No.	Date	By	Revision
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Scale: (Scales below are for Ansi D Full Size Dwg.)

Horiz: 1:250 Vert: 1:50

Stamp	Stamp		
		Design	SR
		Ch'kd	EB
		Drawn	SR
		Date	JUN 2020

Mainley Group — CONSULTING ENGINEERS PLANNERS

ODESSA WEST DRAINAGE IMPROVEMENTS

PLAN AND PROFILE - EMMA ST. E. STA. 20+100 TO STA. 20+165

Loyalist Township

Consultant File No.	Drawing No.
18838-1	313

FILE NAME: K:\Projects\18838 - Odessa Drainage Study\18838-1 Project\Drawings_civil\layouts\18838-1 - Plan Profile_Emma.dwg

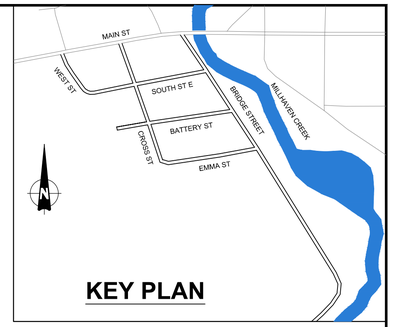
CULVERT PIPE DATA						
FROM	INLET ELEVATION	OUTLET ELEVATION	SIZE	LENGTH	SLOPE	MATERIAL
CULVERT 101	118.08	116.98	600	43.4	2.5%	HDPE
CULVERT 102	117.52	116.89	600	19.6	3.2%	HDPE
CULVERT 103	120.31	120.25	300	5.0	1.3%	HDPE
CULVERT 104	120.18	120.03	300	10.6	1.4%	HDPE
CULVERT 105	121.51	121.46	300	14.3	0.3%	HDPE
CULVERT 106	121.63	121.59	300	8.9	0.5%	HDPE
CULVERT 107	121.74	121.68	300	7.9	0.7%	HDPE
CULVERT 108A	122.35	121.85	375	15.1	3.3%	HDPE
CULVERT 108B	122.35	122.00	375	15.1	2.3%	HDPE
CULVERT 109	122.51	122.42	375	6.3	1.4%	HDPE
CULVERT 110	122.92	122.82	375	7.1	1.4%	HDPE
CULVERT 111	123.45	123.42	375	5.0	0.5%	HDPE
CULVERT 112	123.46	123.46	300	9.4	0.0%	HDPE
CULVERT 113	124.22	124.06	300	8.9	1.8%	HDPE
CULVERT 114	123.55	123.58	300	6.6	0.5%	HDPE
CULVERT 115	123.53	123.57	300	7.3	0.5%	HDPE
CULVERT 116	122.99	122.75	300	7.2	3.3%	HDPE
CULVERT 117	122.68	122.39	300	10.1	2.9%	HDPE
CULVERT 118	122.37	122.23	300	7.8	1.8%	HDPE
CULVERT 119	122.14	122.11	300	5.8	0.4%	HDPE
CULVERT 120	122.12	122.09	300	6.7	0.4%	HDPE
CULVERT 121	122.08	122.04	300	9.0	0.4%	HDPE
CULVERT 122	122.00	122.04	300	9.5	0.5%	HDPE
CULVERT 123	121.95	121.91	300	7.3	0.4%	HDPE
CULVERT 124	121.93	121.90	300	6.2	0.4%	HDPE
CULVERT 126	116.64	116.76	600	8.0	1.5%	HDPE
CULVERT 127A	121.72	121.70	375	7.0	0.3%	HDPE
CULVERT 127B	121.71	121.67	375	7.0	0.5%	HDPE

STORM SEWER PIPE DATA							
FROM	TO	INLET ELEVATION	OUTLET ELEVATION	SIZE	LENGTH	SLOPE	MATERIAL
MH 101	HW101	116.90	116.87	900	6.3	0.47%	SDR35 PVC
MH 102	MH 101	117.83	116.96	900	100.0	0.87%	SDR35 PVC
MH 103	MH 102	118.81	117.86	900	76.7	1.24%	SDR35 PVC
OGS 104	MH 103	118.92	118.84	900	16.3	0.49%	SDR35 PVC
MH 105	OGS 104	119.06	119.00	900	13.2	0.45%	SDR35 PVC
MH 106	MH 105	119.57	119.09	900	67.3	0.71%	SDR35 PVC
CB 105A	MH 105	119.87	119.66	300	6.6	3.18%	SDR35 PVC
MH 107	MH 106	119.87	119.72	750	27.8	0.54%	SDR35 PVC
MH 108	MH 107	119.96	119.90	750	11.2	0.54%	SDR35 PVC
MH 109	MH 108	120.42	119.98	750	86.5	0.51%	SDR35 PVC
DICBMH 107A	MH 107	120.12	120.05	450	14.9	0.47%	SDR35 PVC
DICBMH 108A	MH 108	120.17	120.13	525	11.4	0.35%	SDR35 PVC
CB 106A	MH 106	120.43	120.17	300	5.7	4.54%	SDR35 PVC
MH 110	MH 109	120.49	120.44	750	9.9	0.51%	SDR35 PVC
DICB 108B	MH 108	120.88	120.72	375	12.5	1.28%	SDR35 PVC
MH 111	MH 110	120.91	120.72	525	23.6	0.80%	SDR35 PVC
MH 112	MH 111	121.45	120.94	525	63.2	0.81%	SDR35 PVC
DICB111A	MH 111	121.40	121.14	300	6.9	3.76%	SDR35 PVC
DICB 109A	MH 109	121.26	121.20	375	11.4	0.52%	SDR35 PVC
DICB 110A	MH 110	121.26	121.20	375	9.8	0.61%	SDR35 PVC
DCBMH 113	MH 112	121.63	121.51	525	14.2	0.85%	SDR35 PVC
CBMH 114	DCBMH 113	123.08	121.69	450	50.0	2.78%	SDR35 PVC
DCB 113A	DCBMH 113	121.91	121.75	375	5.0	3.20%	SDR35 PVC
CBMH 115	CBMH 114	123.32	123.10	450	40.4	0.54%	SDR35 PVC
MH 116	CBMH 115	123.41	123.34	450	18.5	0.38%	SDR35 PVC
DCBMH 117	MH 116	123.64	123.43	450	58.3	0.36%	SDR35 PVC
CB 114A	CBMH 114	123.68	123.48	250	5.0	4.00%	SDR35 PVC
MH 116	DCBMH 116A	123.53	123.58	300	8.6	0.58%	SDR35 PVC
DCB 117A	DCBMH 117	123.82	123.70	375	7.8	1.50%	SDR35 PVC
CB 115A	CBMH 115	124.04	123.84	250	5.0	4.00%	SDR35 PVC

STORM SEWER STRUCTURE DATA						
STR NO	STATION	OFFSET	TYPE OF STRUCTURE OPSD	GRATE OPSD	TOP OF GRATE ELEVATION	LOW INVERT
HW101	10+053.8	6.29 LT	MODIFIED- OPSD-804.03	N/A	N/A	116.87
MH 101	10+054.6	0.00 T	701.013	401.010	118.75	116.90
MH 102	10+154.6	0.00 T	701.011	401.010	119.91	117.83
MH 103	10+231.3	0.00 T	701.012	401.010	120.88	118.81
OGS 104	10+245.1	8.64 RT	SOGS UNIT	MRF SUPPLIER	120.90	118.92
CB 105A	10+257.3	2.90 LT	705.010	400.010	121.17	119.87
MH 105	10+257.4	3.71 RT	701.012	401.010	121.17	119.06
MH 106	10+324.7	2.90 RT	701.011	401.010	121.79	119.57
CB 106A	10+324.8	2.83 LT	705.010	400.010	121.78	120.43
DICBMH 107A	10+352.5	12.00 LT	702.040	403.010	121.20	120.12
MH 107	10+352.5	2.90 RT	701.011	401.010	121.84	119.87
DICBMH 108A	10+363.7	9.00 LT	702.040	403.010	121.20	120.17
MH 108	10+363.7	2.40 RT	701.012	401.010	121.92	119.96
DICB 108B	10+373.6	5.25 LT	705.040	403.010	121.47	120.88
MH 109	10+450.1	2.40 RT	701.011	401.010	122.45	120.42
DICB 109A	10+451.8	8.93 LT	705.040	403.010	121.86	121.26
MH 110	10+460.0	2.90 RT	701.011	401.010	122.53	120.49
DICB 110A	10+460.1	6.87 LT	705.040	403.010	121.86	121.26
DICB111A	10+483.5	4.02 LT	705.040	403.010	122.30	121.40
MH 111	10+483.6	2.90 RT	701.010	401.010	122.72	120.91
MH 112	10+546.7	2.50 RT	701.010	401.010	123.14	121.45
DCBMH 116A	50+004.9	5.17 RT	701.011	400.010	125.14	123.58
MH 116	50+005.3	3.45 LT	701.010	401.010	125.20	123.41
DCBMH 117	50+063.5	2.90 LT	701.011	400.010	124.86	123.64
DCB 117A	50+063.5	4.86 RT	705.020	400.010	124.98	123.82
CB 115A	60+013.3	2.50 LT	705.010	400.010	125.10	124.04
CBMH 115	60+013.3	2.50 RT	701.010	400.010	125.10	123.32
CBMH 114	60+053.8	2.50 RT	701.010	400.010	124.66	123.08
CB 114A	60+053.8	2.50 LT	705.010	400.010	124.66	123.68
CB 113A	60+103.7	2.50 LT	705.020	400.010	123.04	121.91
DCBMH 113	60+103.8	2.50 RT	701.011	400.010	123.04	121.63

SANITARY SEWER PIPE DATA							
FROM	TO	INLET INVERT	OUTLET INVERT	SIZE	LENGTH	SLOPE	MATERIAL
MH 201	MH 200	119.262	118.970	200	73.00	0.40%	SDR35 PVC
MH 202	MH 201	119.574	119.282	200	73.00	0.40%	SDR35 PVC
MH 203	MH 202	119.641	119.600	200	10.19	0.40%	SDR35 PVC
MH 211	MH54	120.460	120.410	200	13.86	0.36%	SDR35 PVC
MH 212	MH 211	121.100	120.490	200	43.87	1.39%	SDR35 PVC
MH 213	MH 212	121.690	121.130	200	55.94	1.00%	SDR35 PVC
MH 214	MH 213	122.110	121.720	200	80.45	0.48%	SDR35 PVC
MH62	MH 214	122.330	122.300	200	2.50	1.20%	SDR35 PVC
MH92	MH 213	122.000	121.995	200	1.40	0.36%	SDR35 PVC

SANITARY STRUCTURE DATA						
STR NO	STATION	OFFSET	TYPE OF STRUCTURE OPSD	GRATE OPSD	TOP OF GRATE ELEVATION	LOW INVERT ELEVATION
MH 200	10+355.9	0.66 R	701.010	401.101	121.90	118.82
MH 201	10+371.1	70.75 L	701.010	401.101	122.23	119.26
MH 202	10+389.6	142.04 L	701.010	401.101	122.62	119.57
MH 203	10+395.9	150.02 L	701.010	401.101	122.83	119.64
MH 214	50+077.0	6.00 L	701.010	401.101	124.96	122.21
MH 213	60+000.4	0.29 R	701.010	401.101	125.25	121.69
MH 212	60+056.4	0.50 R	701.010	401.101	124.60	121.10
MH 211	60+100.3	0.31 R	701.010	401.101	123.09	120.46



KEY PLAN

No.	Date	By	Revision
6	2023.04.06	AW	ISSUED FOR TENDER
5	2022.07.22	AW	REVISED AS PER TOWNSHIP COMMENTS
4	2021.06.17	AW	FOR DISCUSSION PURPOSES
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1	2019.01.25	EB	DRAFT SUBMISSION

Scale: (Scales below are for Ansi D Full Size Dwg.)

Horiz: Vert:

Stamp

Stamp

Design	SR
Ch'kd	EB
Drawn	SR
Date	JUN 2020

Mainley GROUP CONSULTING ENGINEERS PLANNERS

ODESSA WEST DRAINAGE IMPROVEMENTS

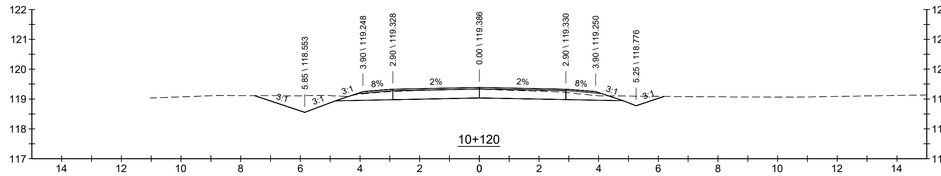
DATA TABLES

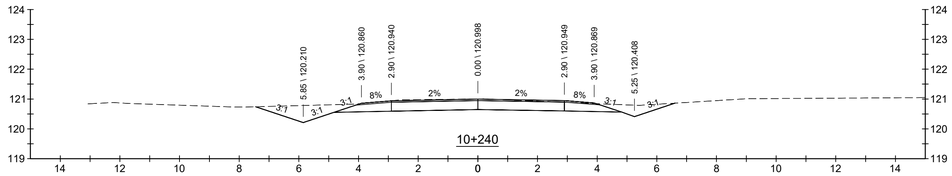
Loyalist TOWNSHIP

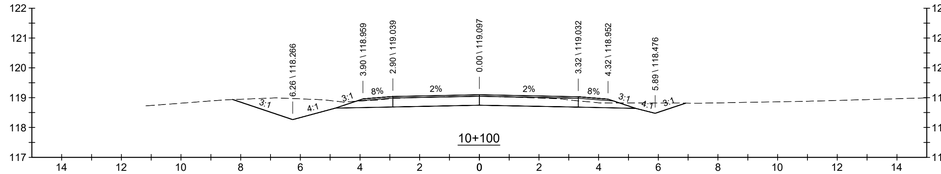
Consultant File No. **18838-1**

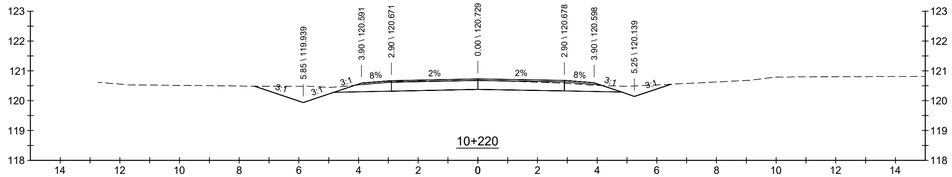
Drawing No. **314**

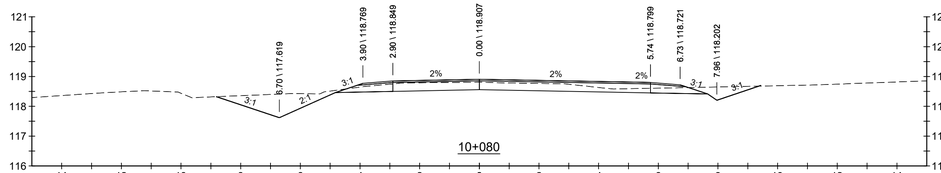
FILE NAME: K:\Projects\18838 - Odessa Drainage Study\18838-1 Project\Drawings_civil\layouts\18838-1 - Pipe Table.dwg

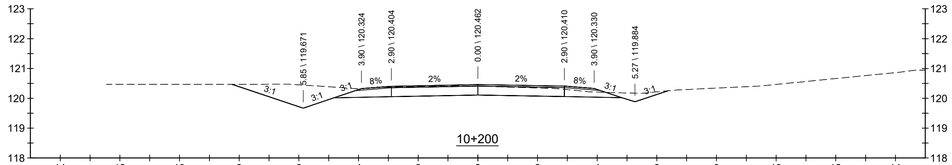


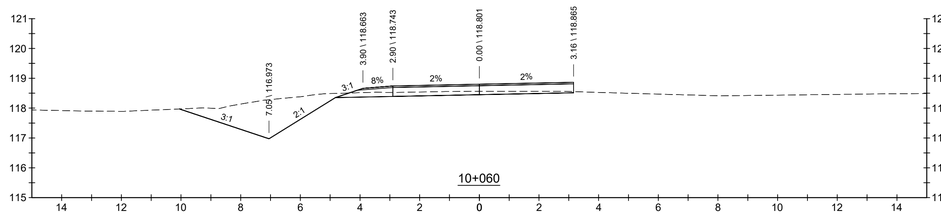


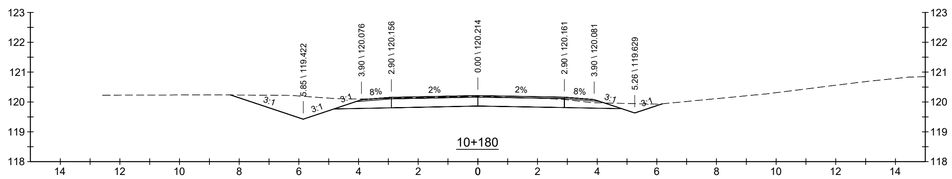


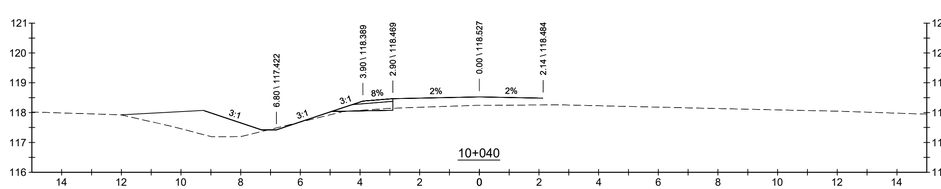


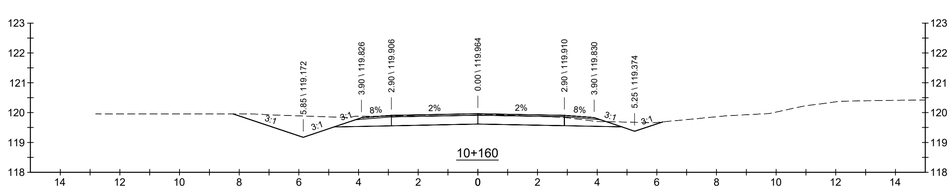


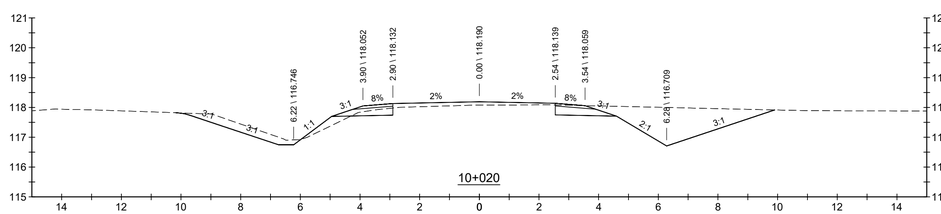


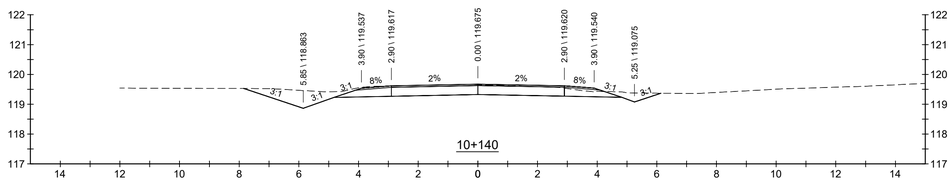












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Scale: (Scales below are for Ansi D Full Size Dwg.)

Horiz: 1:100 Vert: 1:100

Stamp	Stamp		
		Design	SR
		Ch'kd	EB
		Drawn	SR
		Date	JUN 2020

Mainley Group — CONSULTING ENGINEERS PLANNERS

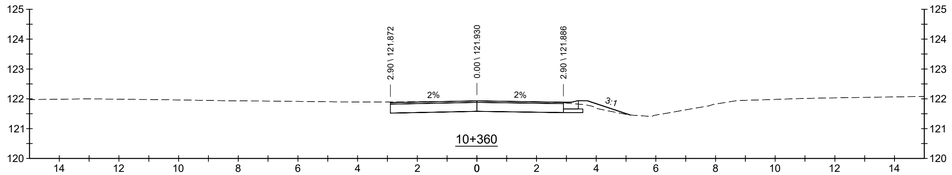
ODESSA WEST DRAINAGE IMPROVEMENTS

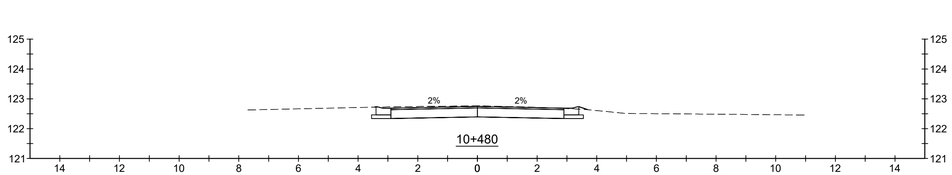
BRIDGE ST. CROSS SECTIONS 1

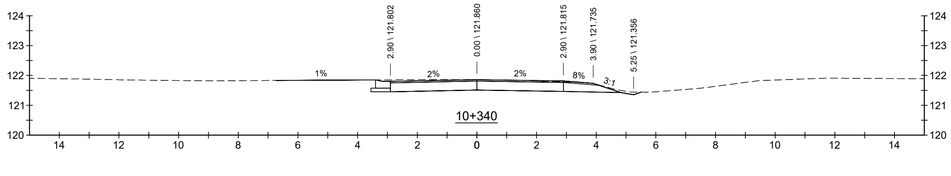
Loyalist Township

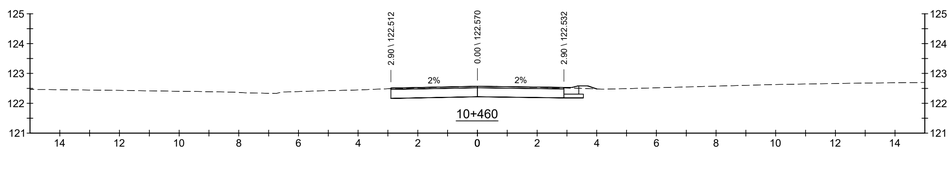
Consultant File No.	Drawing No.
18838-1	400

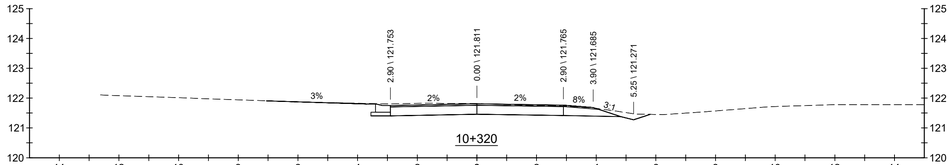
FILE NAME: K:\Projects\18838 - Odessa Drainage Study\18838-1 Project\Drawings_civil\layouts\18838-1 - Cross Sections.dwg

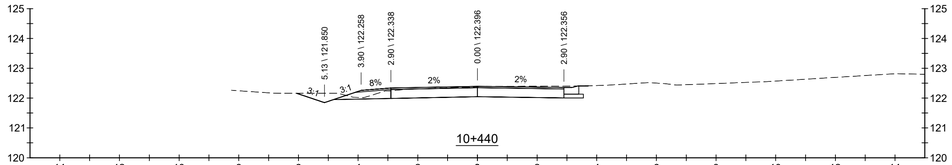


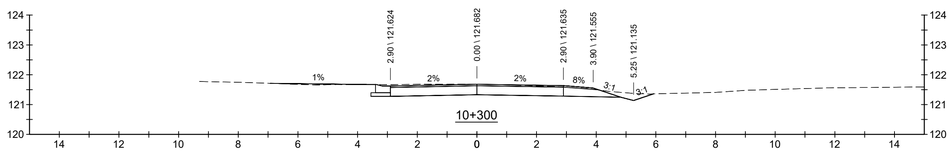


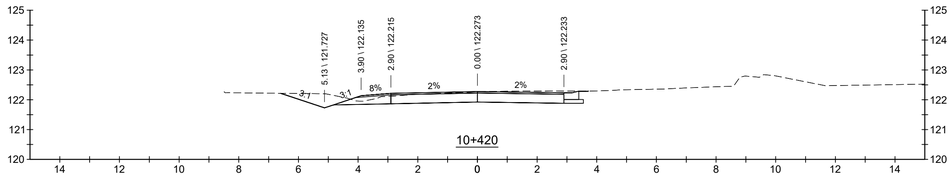


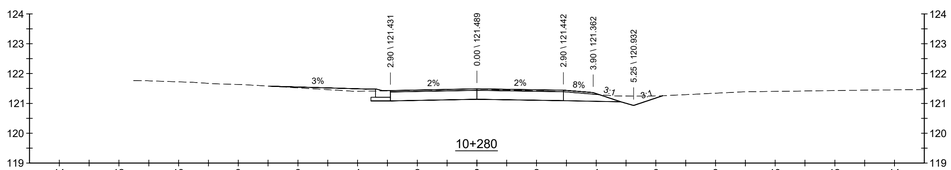


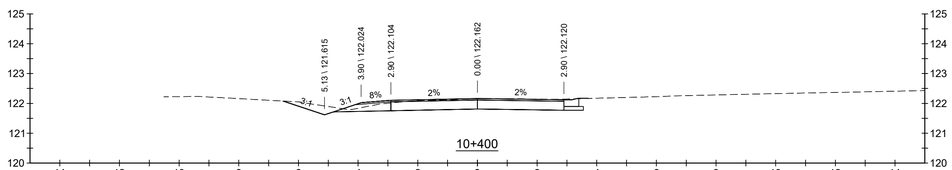


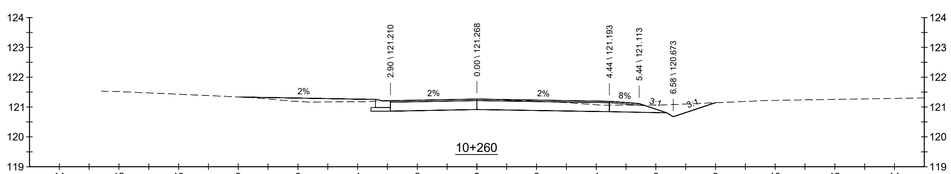


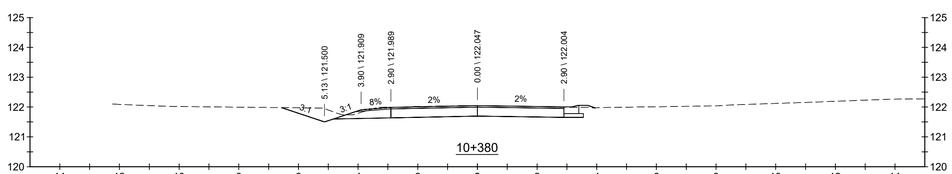












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Scale: (Scales below are for Ansi D Full Size Dwg.)

Horiz: 1:100 Vert: 1:100

Stamp	Stamp		
		Design	SR
		Ch'kd	EB
		Drawn	SR
		Date	JUN 2020

Mainley Group — CONSULTING ENGINEERS PLANNERS

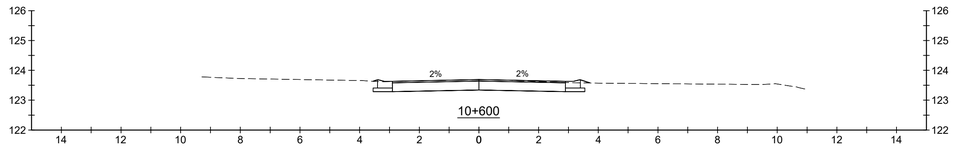
ODESSA WEST DRAINAGE IMPROVEMENTS

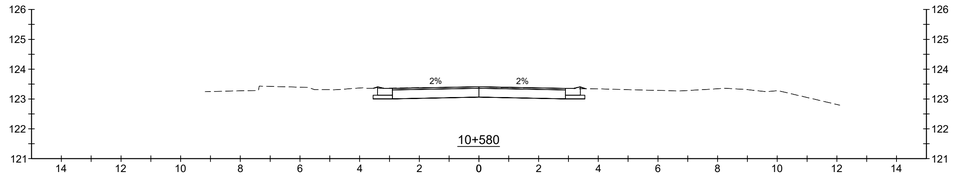
BRIDGE ST. CROSS SECTIONS 2

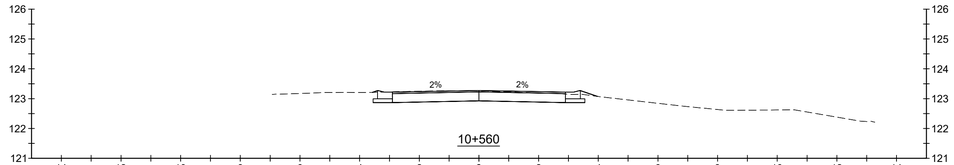
Loyalist Township

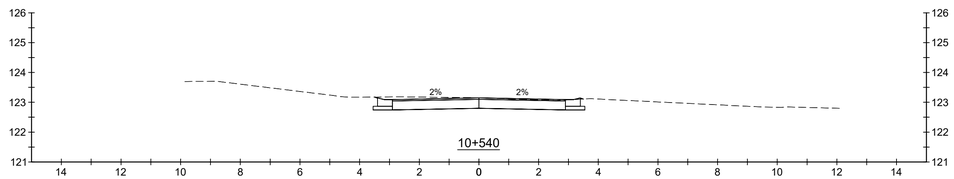
Consultant File No.	Drawing No.
18838-1	401

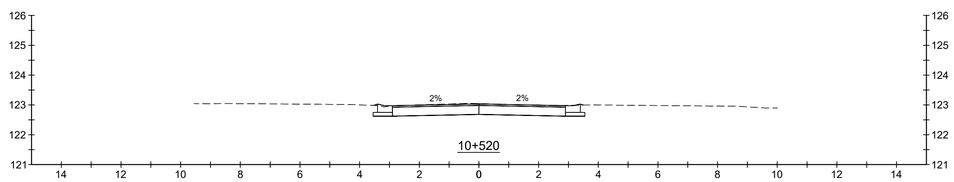
FILE NAME: K:\Projects\18838 - Odessa Drainage Study\18838-1 Project\Drawings_civil\layouts\18838-1 - Cross Sections.dwg

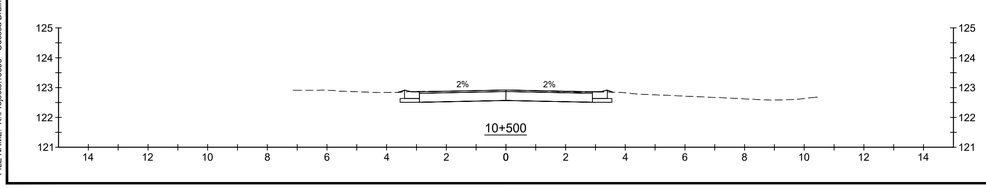


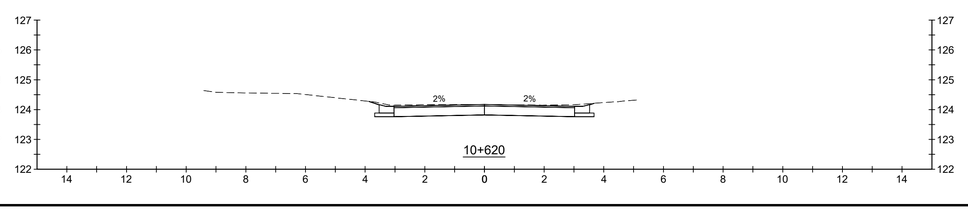












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Stamp	Stamp		
		Design	SR
		Ch'kd	EB
		Drawn	SR
		Date	JUN 2020

Mainley GROUP — CONSULTING ENGINEERS PLANNERS

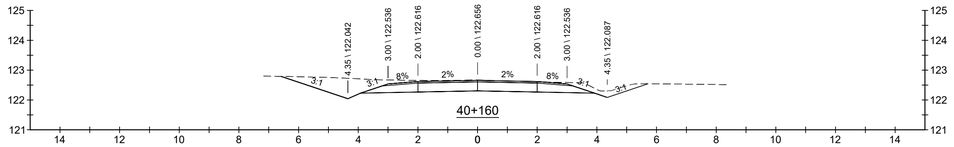
ODESSA WEST DRAINAGE IMPROVEMENTS

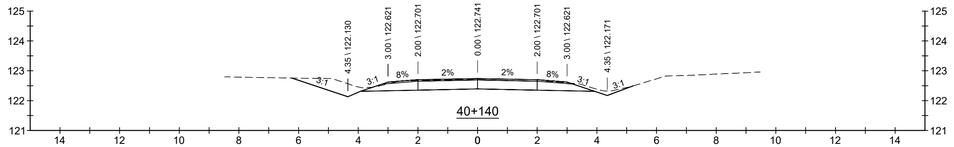
BRIDGE ST. CROSS SECTIONS 3

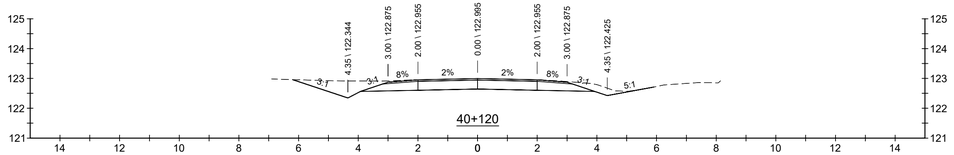
Loyalist TOWNSHIP

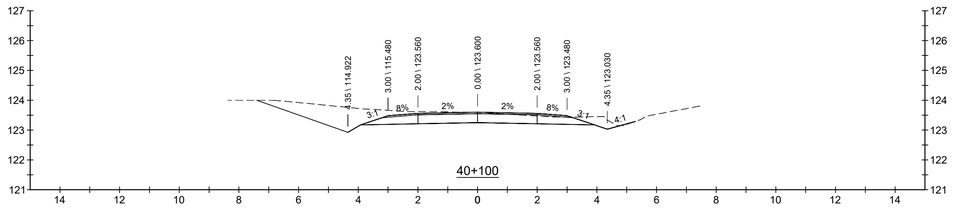
Consultant File No.	Drawing No.
18838-1	402

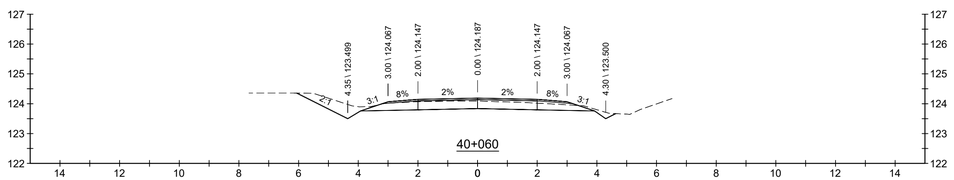
FILE NAME: K:\Projects\18838 - Odessa Drainage Study\18838-1 Project\Drawings_civil\layouts\18838-1 - Cross Sections.dwg

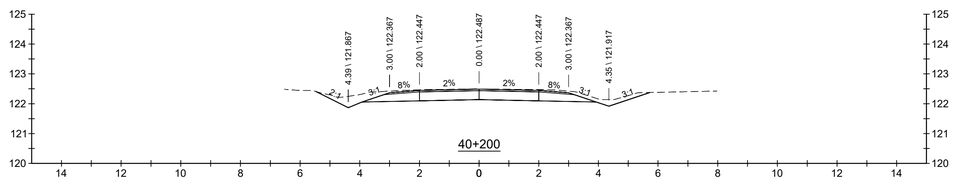


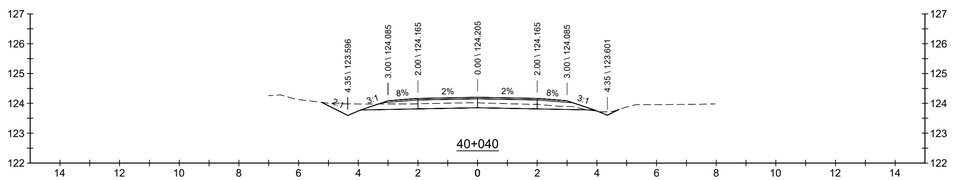


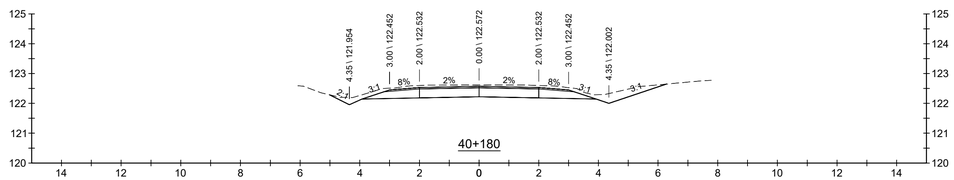












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Horiz: 1:100 Vert: 1:100

Stamp	Stamp		
		Design	SR
		Ch'kd	EB
		Drawn	SR
		Date	JUN 2020

Ainley GROUP — CONSULTING ENGINEERS PLANNERS

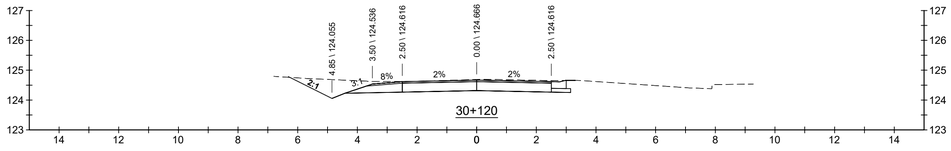
ODESSA WEST DRAINAGE IMPROVEMENTS

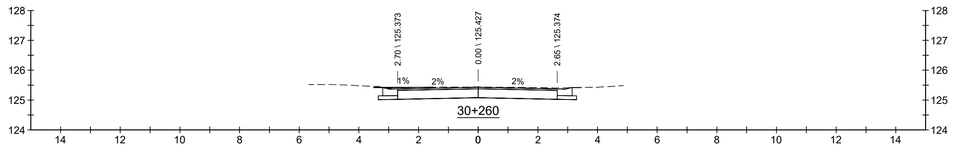
BATTERY ST. CROSS SECTIONS

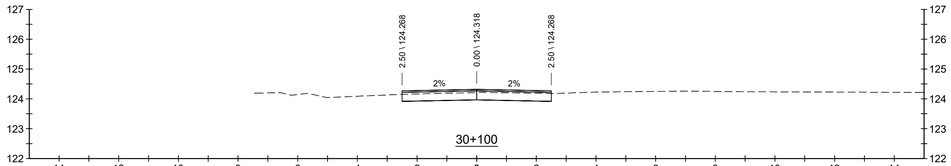
Loyalist TOWNSHIP

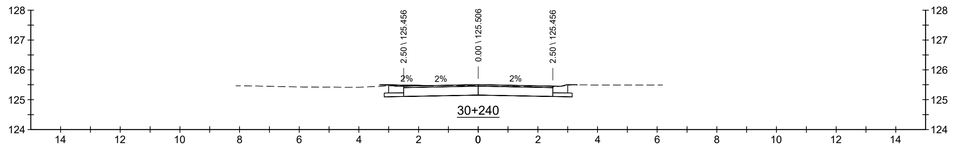
Consultant File No.	Drawing No.
18838-1	403

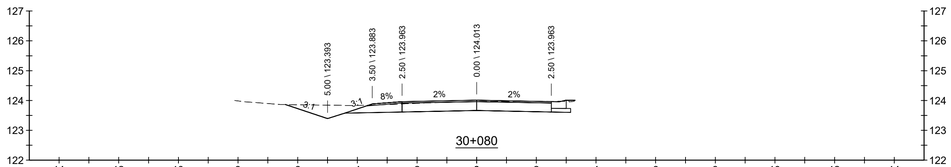
FILE NAME: K:\Projects\18838 - Odessa Drainage Study\18838-1 Project\Drawings\L_civil\layouts\18838-1 - Cross Sections.dwg

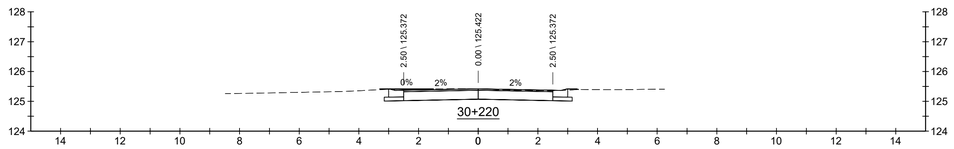


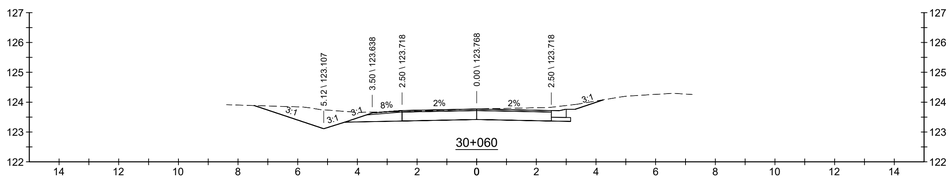


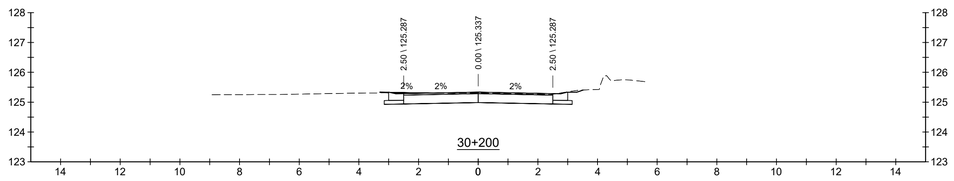


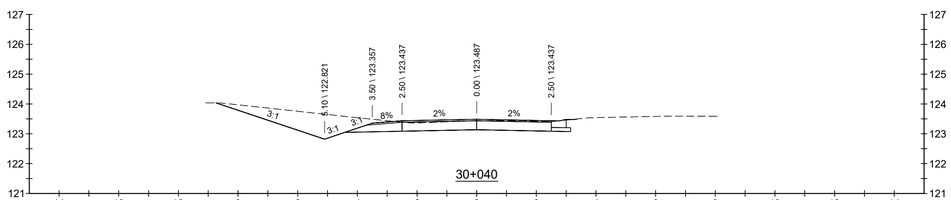


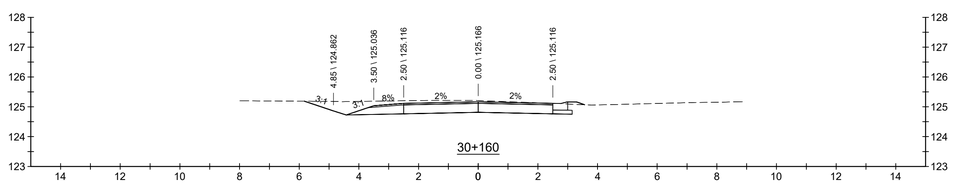


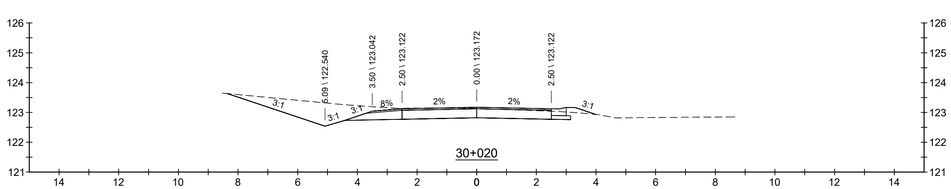


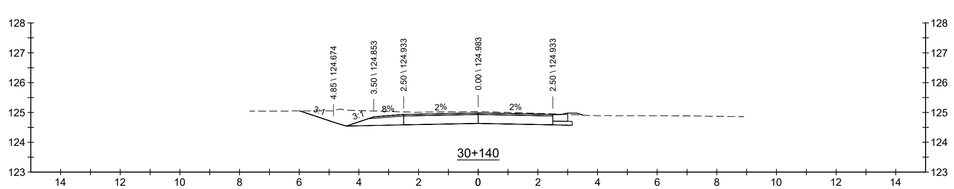












No.	Date	By	Revision
6	2023.04.06	AW	ISSUED FOR TENDER
5	2022.07.22	AW	REVISED AS PER TOWNSHIP COMMENTS
4	2021.06.17	AW	FOR DISCUSSION PURPOSES
3	2020.06.05	EB	FINAL DESIGN REVIEW
2	2019.10.09	EB	PROGRESS SET
1	2019.01.25	EB	DRAFT SUBMISSION

Scale: (Scales below are for Ansi D Full Size Dwg.)

Horiz: Vert:

Stamp	Stamp		
		Design	SR
		Ch'kd	EB
		Drawn	SR
		Date	JUN 2020

Ainley GROUP — CONSULTING ENGINEERS PLANNERS

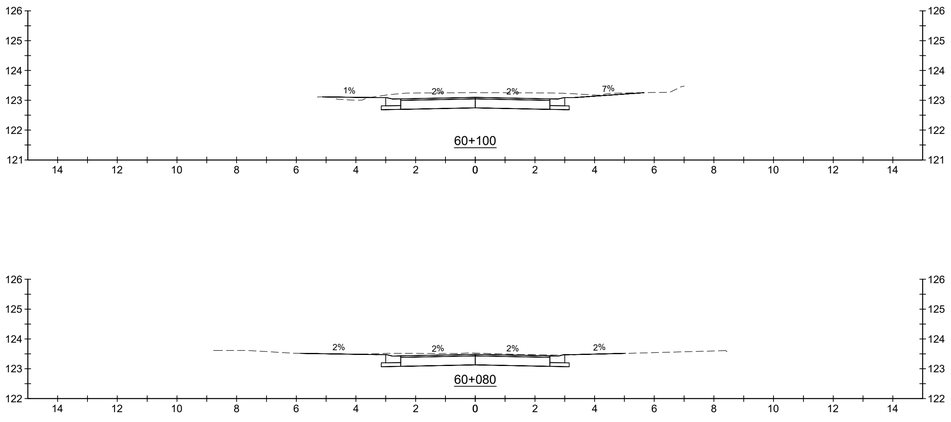
ODESSA WEST DRAINAGE IMPROVEMENTS

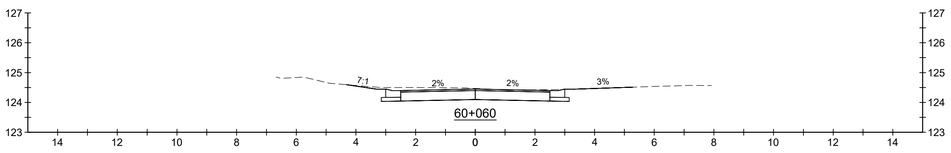
CROSS ST. CROSS SECTIONS

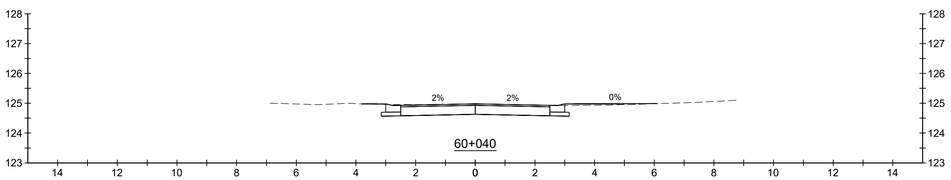
Loyalist TOWNSHIP

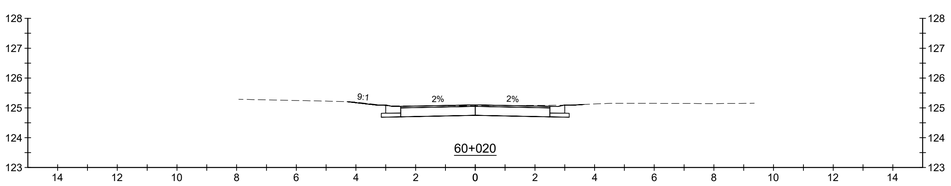
Consultant File No.	Drawing No.
18838-1	404

FILE NAME: K:\Projects\18838 - Odessa Drainage Study\18838-1 Project\Drawings_civil\layouts\18838-1 - Cross Sections.dwg









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Horiz: 1:100 Vert: 1:100

Stamp	Stamp		
		Design	SR
		Ch'kd	EB
		Drawn	SR
		Date	JUN 2020

Ainley GROUP CONSULTING ENGINEERS PLANNERS

ODESSA WEST DRAINAGE IMPROVEMENTS

SOUTH ST. E. CROSS SECTIONS

Loyalist TOWNSHIP

Consultant File No.	Drawing No.
18838-1	405

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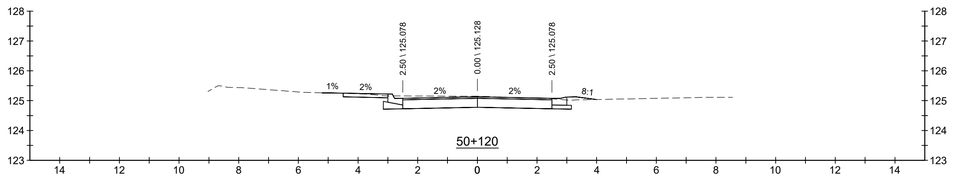

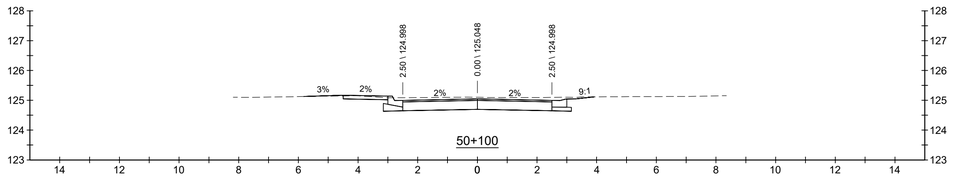

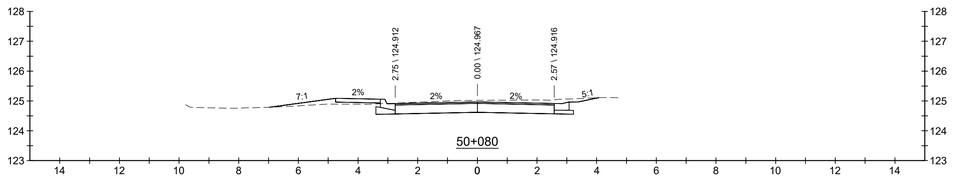

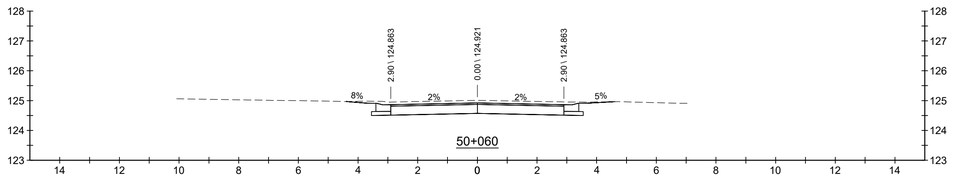

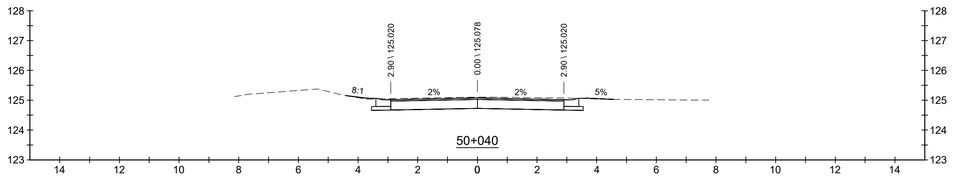

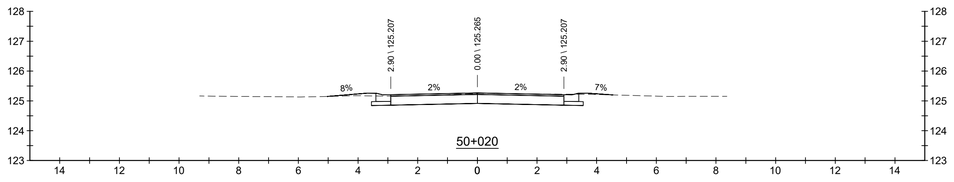

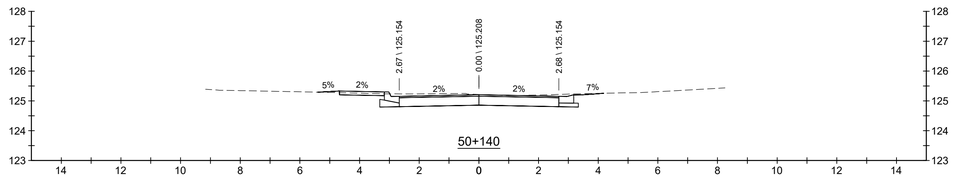

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Stamp	Stamp		
		Design	SR
		Ch'kd	EB
		Drawn	SR
		Date	JUN 2020

Ainley Group — CONSULTING ENGINEERS PLANNERS

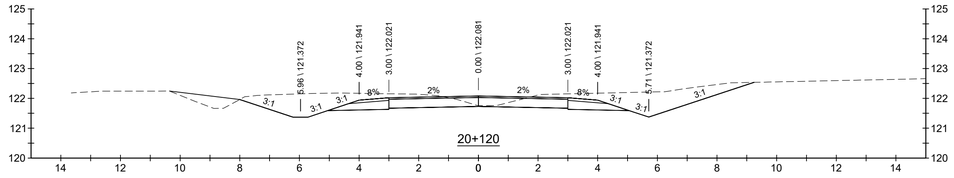
ODESSA WEST DRAINAGE IMPROVEMENTS

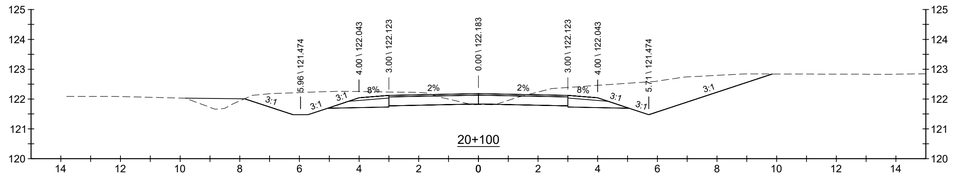
WEST ST AND SOUTH ST. E. CROSS SECTIONS

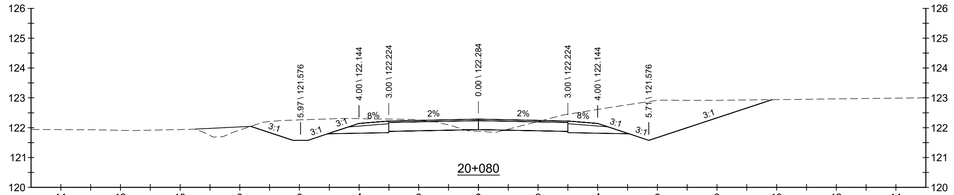
Loyalist Township

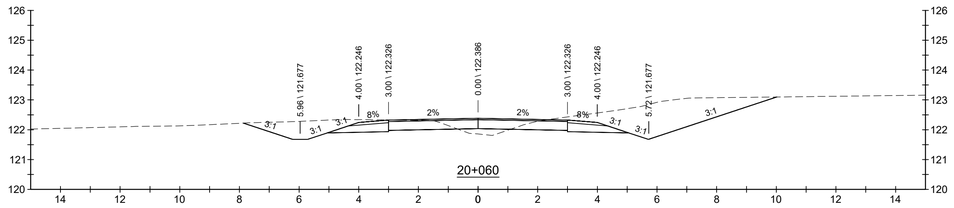
Consultant File No.	Drawing No.
18838-1	406

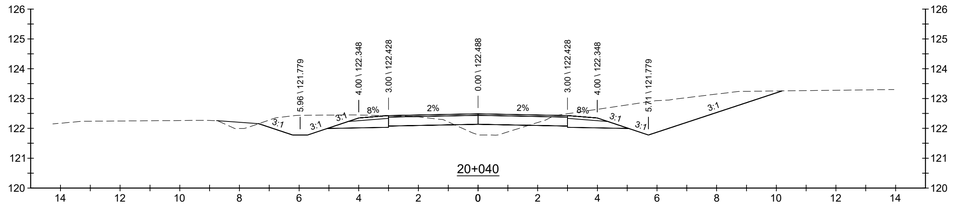
FILE NAME: K:\Projects\18838 - Odessa Drainage Study\18838-1 Project\Drawings_civil\layouts\18838-1 - Cross Sections.dwg

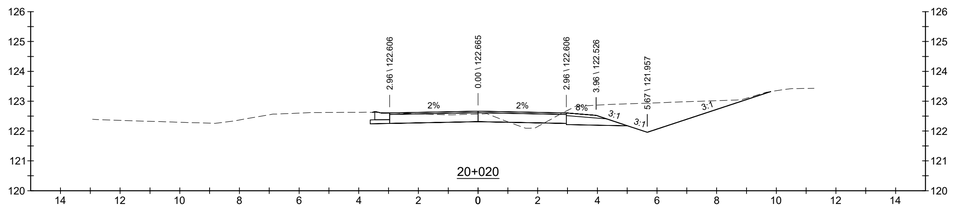


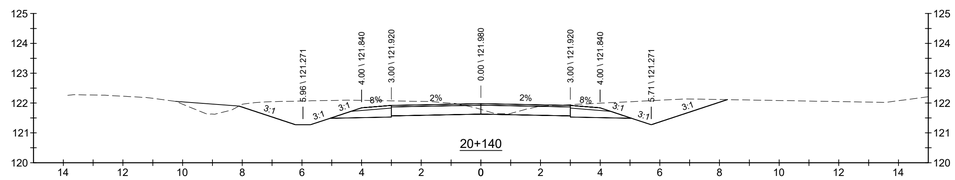












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Stamp	Stamp		
		Design	SR
		Ch'kd	EB
		Drawn	SR
		Date	JUN 2020

Ainley GROUP — CONSULTING ENGINEERS PLANNERS

ODESSA WEST DRAINAGE IMPROVEMENTS

EMMA ST CROSS SECTIONS

Loyalist TOWNSHIP

Consultant File No.	Drawing No.
18838-1	407

FILE NAME: K:\Projects\18838 - Odessa Drainage Study\18838-1 Project\Drawings_civil\layouts\18838-1 - Cross Sections.dwg