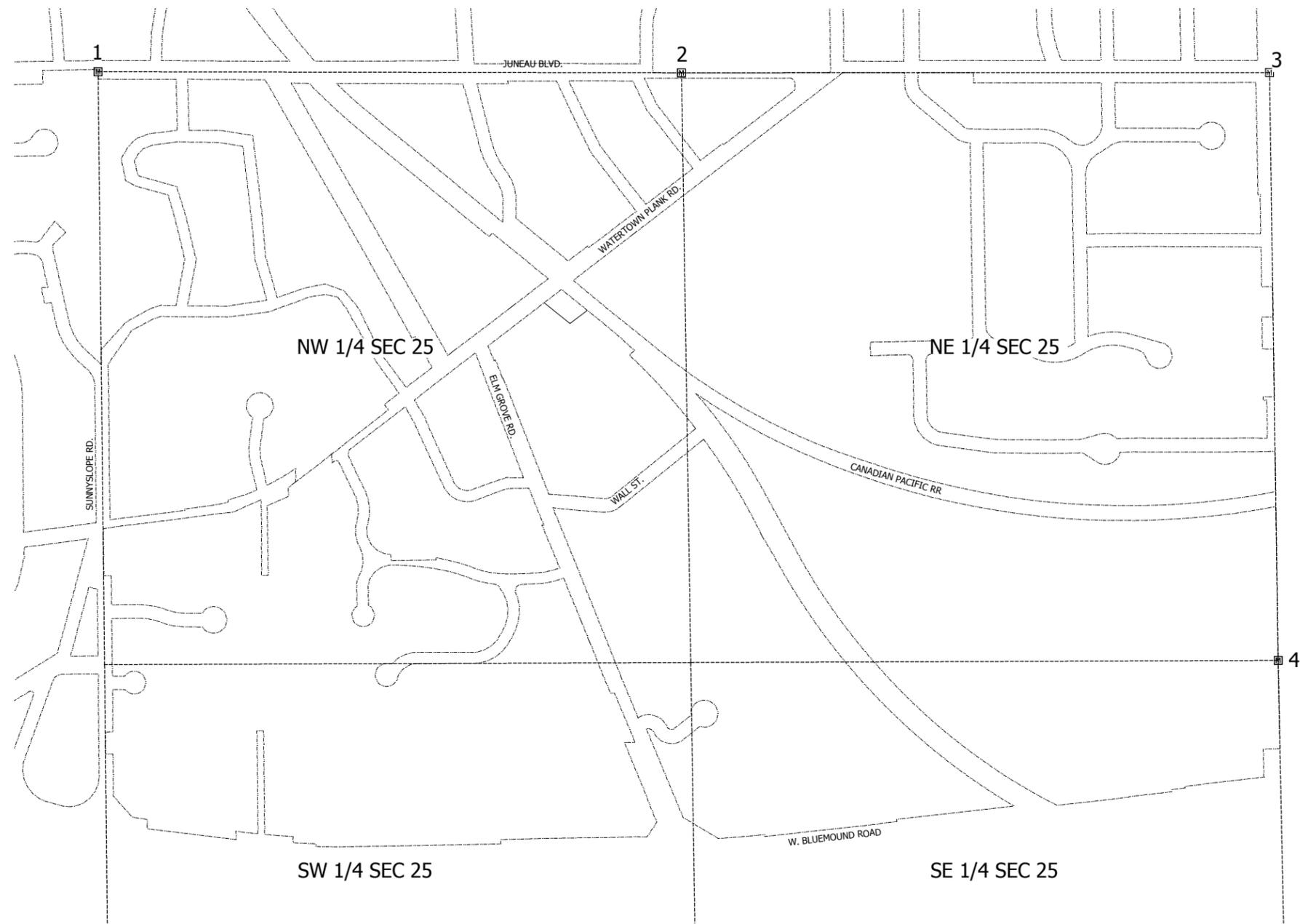


THE CONTRACTOR SHALL VERIFY AND BE RESPONSIBLE FOR ALL DIMENSIONS. DO NOT SCALE THE DRAWING. ANY ERRORS OR OMISSIONS SHALL BE REPORTED TO STANTEC WITHOUT DELAY. REPRODUCTION OR USE FOR ANY PURPOSE OTHER THAN THAT AUTHORIZED BY STANTEC IS FORBIDDEN.

Plot Date: 01/10/2019 - 6:47pm
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 User: bender.193804489_2019



GENERAL NOTES

- EXISTING UTILITIES SHOWN ARE INDICATED IN ACCORDANCE WITH AVAILABLE RECORDS. OTHER UTILITIES MAY ALSO BE PRESENT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING EXACT LOCATIONS AND ELEVATIONS OF ALL UTILITIES FROM THE OWNERS OF THE RESPECTIVE UTILITIES. ALL UTILITY OWNERS SHALL BE NOTIFIED BY THE CONTRACTOR A MINIMUM OF FIVE (5) WORKING DAYS PRIOR TO EXCAVATION.
- ALL UTILITY ELEVATIONS ARE SHOWN AS INVERT ELEVATIONS UNLESS OTHERWISE NOTED.
- INVERT ELEVATIONS ARE AT THE CENTERLINE OF THE STRUCTURE UNLESS OTHERWISE NOTED.
- LIMITS OF CONSTRUCTION AREA SHALL BE FENCED PRIOR TO COMMENCEMENT OF WORK.
- DEMOLITION OF THE ONE-HOUR MARTINIZING BUILDING SHALL BE COMPLETED BY OTHERS.
- CONSTRUCTION SEQUENCE: CONSTRUCT NEW CHANNEL FROM DOWNSTREAM END TO APPROXIMATELY STN 0+75, INCLUDING NEW CULVERT AT WALL STREET. CONSTRUCT PLUNGE POOL AND CHANNEL SECTION IMMEDIATELY DOWNSTREAM OF WATERTOWN PLANK ROAD. COMPLETE CONNECTION TO NEW CHANNEL, AND TRANSFER STREAM FLOW TO NEW CHANNEL. CONSTRUCT NEW PARKING LOT STORM SEWERS. COMPLETE DEMOLITION OF EXISTING PARKING LOT UNDERWOOD CREEK CULVERT. COMPLETE CONSTRUCTION OF STONE WEIR AT DOWNSTREAM END OF PROJECT.

SURVEY CONTROL AND ALIGNMENT DATA

- ALL COORDINATES ARE BASED ON WISCONSIN STATE PLANE COORDINATE SYSTEM SOUTH ZONE NAD27, AND ALL BEARINGS AND DISTANCES SHOWN ARE GROUND NGVD29.



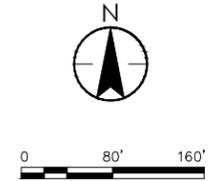
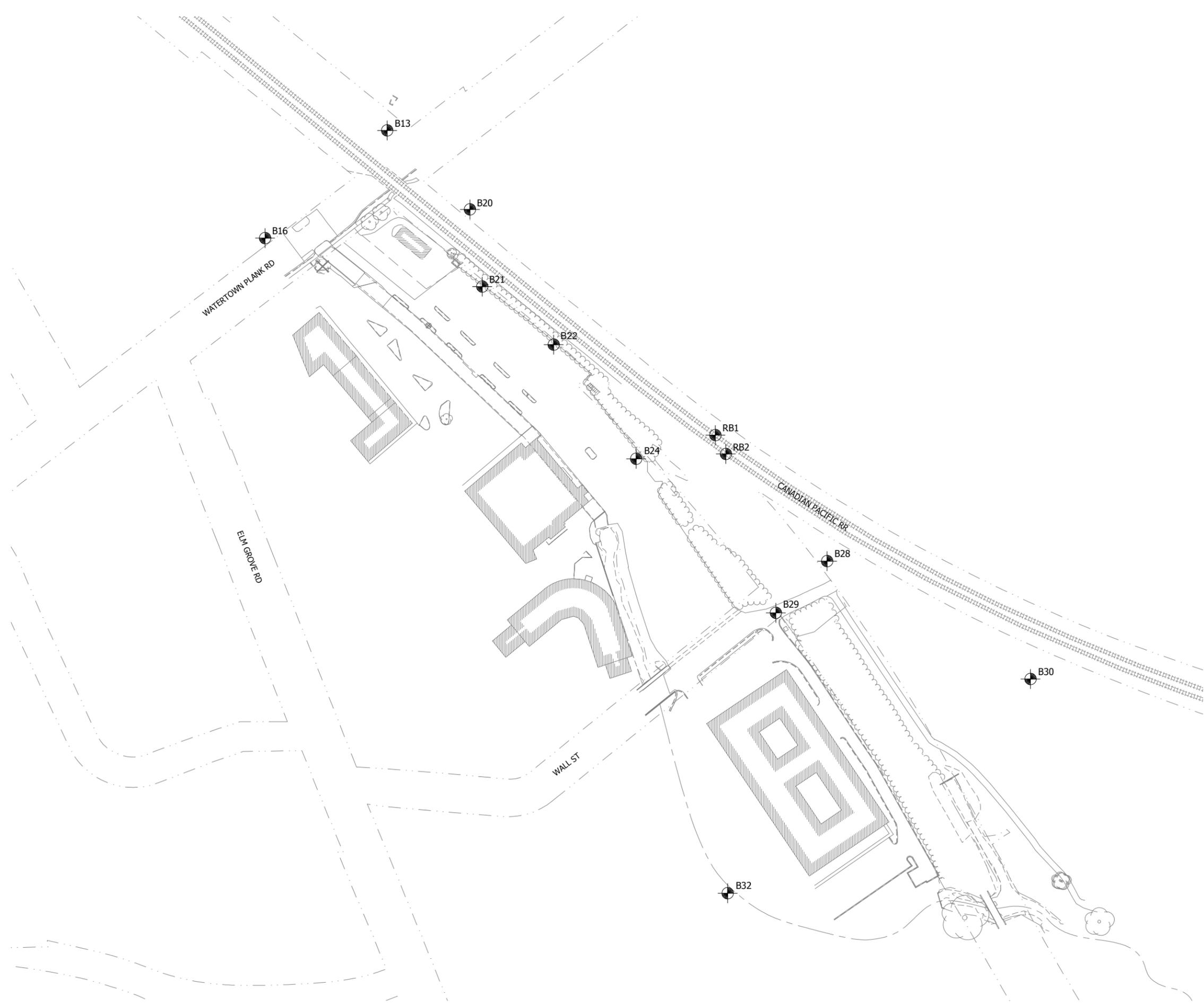
DATE OF ISSUANCE
 January 10, 2019

NO	REVISION	DATE

SURVEY	JSH
DRAWN	AJR
DESIGNED	BG
CHECKED	RJK
APPROVED	JG
PROJ. NO.	193804489

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SOIL BORING LOCATIONS
 UNDERWOOD CREEK DAYLIGHTING
 VILLAGE OF ELM GROVE
 WAUKESHA COUNTY, WISCONSIN

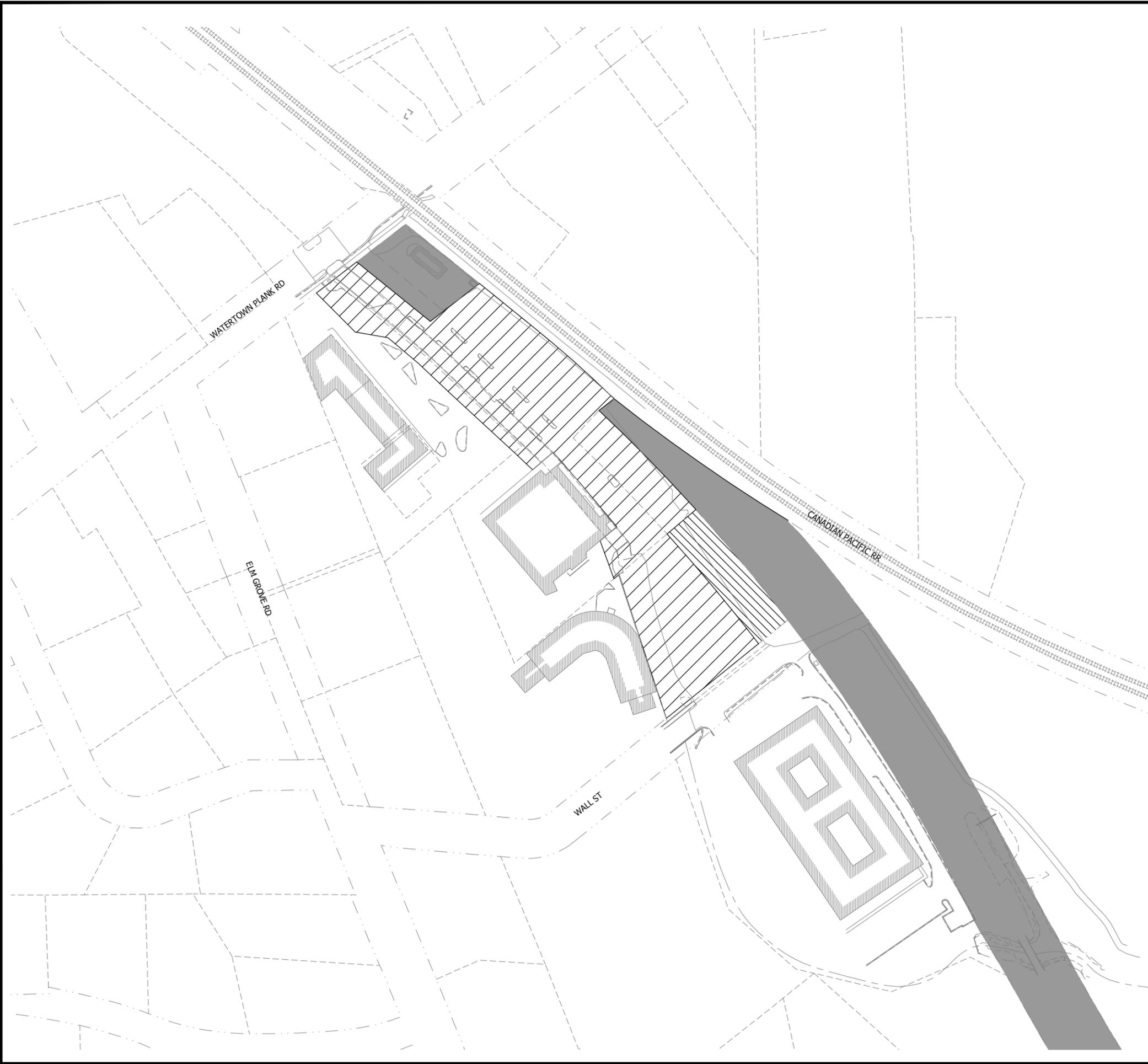
DATE OF ISSUANCE
 January 10, 2019

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SURVEY	JSH
DRAWN	AJR
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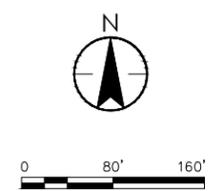


NOTE
 1. CONSTRUCTION SITE ACCESS AND HAUL ROUTES SHALL BE LIMITED TO WALL STREET AND ELM GROVE ROAD.

- VILLAGE OWNED - VILLAGE OWNED PROPERTY
- VILLAGE ACQUISITION - PROPERTY ANTICIPATED TO BE VILLAGE-OWNED PRIOR TO COMMENCEMENT OF CONSTRUCTION.
- TLE - TEMPORARY EASEMENT FOR CONSTRUCTION, STAGING, AND TEMPORARY MATERIAL STORAGE DURING CONSTRUCTION.

LEGEND

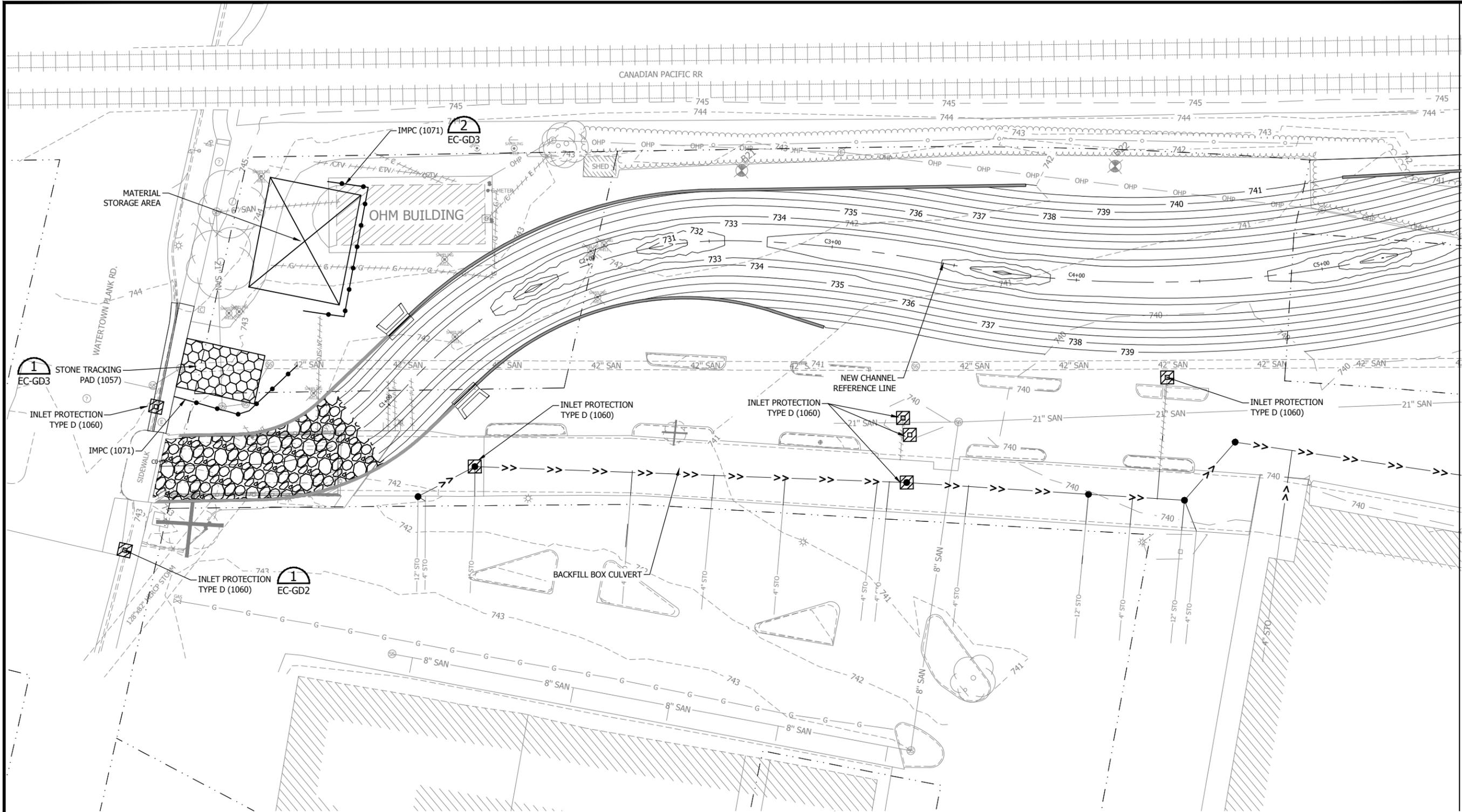
	VILLAGE OWNED
	VILLAGE ACQUISITION
	TLE



DATE OF ISSUANCE	
January 10, 2019	
NO	REVISION DATE
SURVEY	JSH
DRAWN	AJR
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PROJ. NO.	193804489

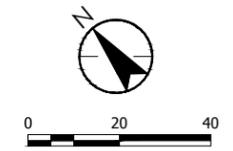
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LEGEND

	SILT FENCE (1056)
	INLET PROTECTION (1060)
	STONE DITCH CHECK (1062)
	IMPC (INTERIM MANUFACTURED PERIMETER CONTROL) (1071)
	RIP RAP
	STONE TRACKING PAD (1057)
	MATERIAL STORAGE AREA



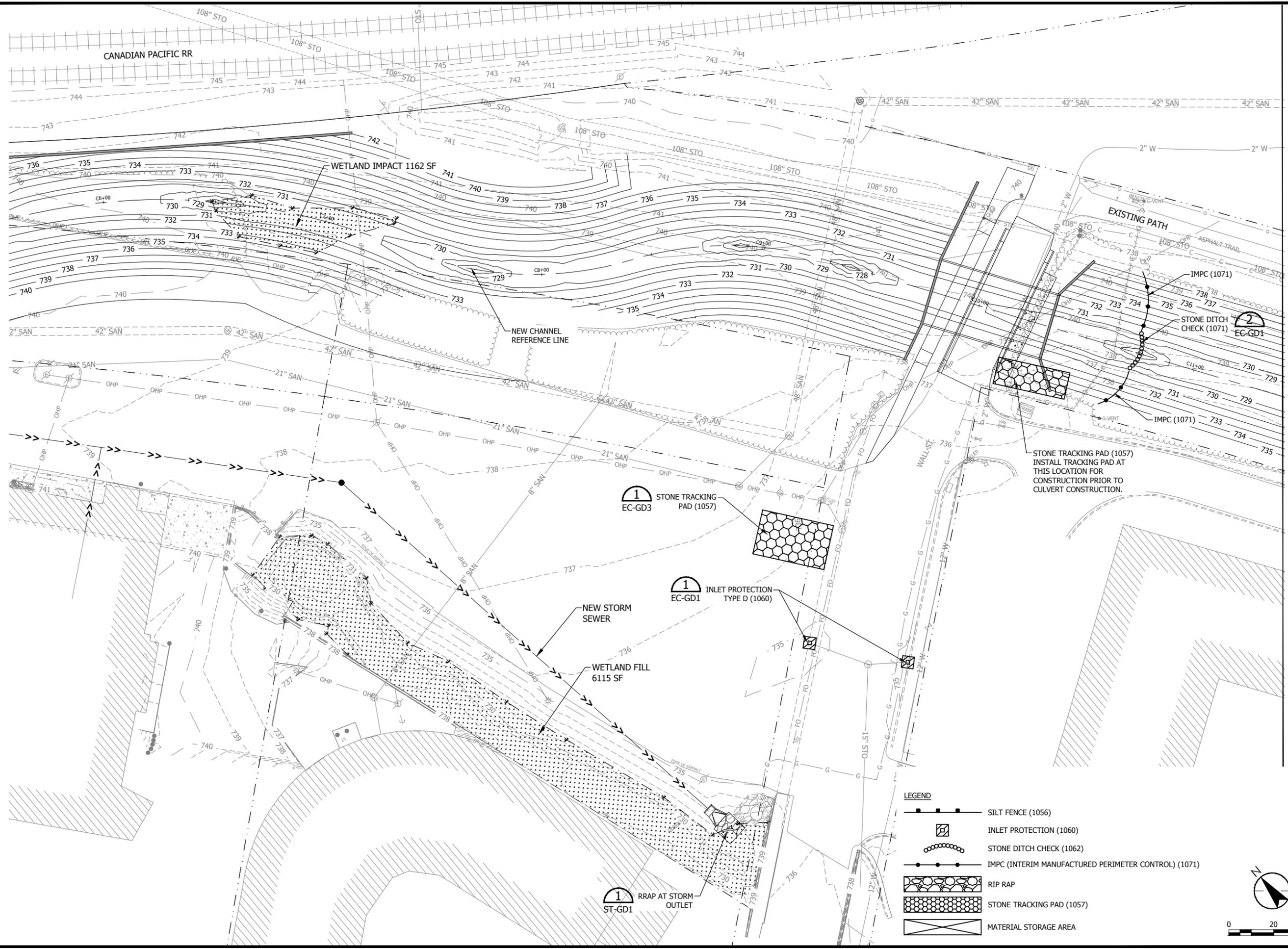
**FOR PERMITTING/
 REGULATOR
 REVIEW**

SUGGESTED EROSION CONTROL PLAN
 UNDERWOOD CREEK DAYLIGHTING
 VILLAGE OF ELM GROVE
 WAUKESHA COUNTY, WISCONSIN

DATE OF ISSUANCE	January 10, 2019
NO. REVISION	DATE
SURVEY	JSH
DRAWN	AJR
DESIGNED	BG
CHECKED	RJK
APPROVED	JG
PROJ. NO.	193804489
SHEET NUMBER	EC-1

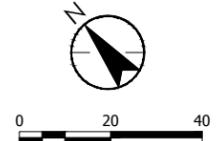
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LEGEND

	SILT FENCE (1056)
	INLET PROTECTION (1060)
	STONE DITCH CHECK (1062)
	IMPC (INTERIM MANUFACTURED PERIMETER CONTROL) (1071)
	RIP RAP
	STONE TRACKING PAD (1057)
	MATERIAL STORAGE AREA



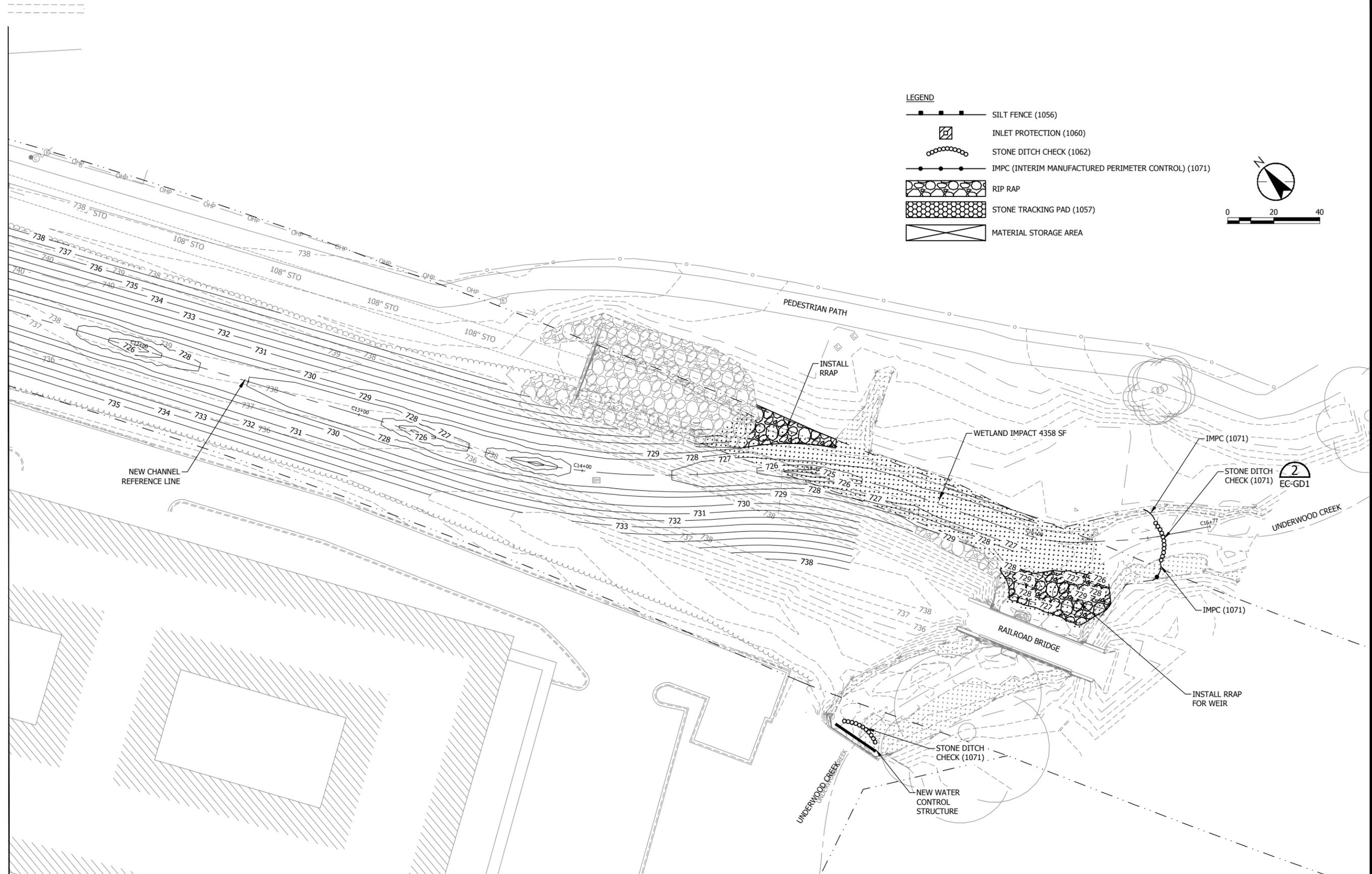
**FOR PERMITTING/
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SUGGESTED EROSION CONTROL PLAN
 UNDERWOOD CREEK DAYLIGHTING
 VILLAGE OF ELM GROVE
 WAUKESHA COUNTY, WISCONSIN

DATE OF ISSUANCE	January 10, 2019
NO. REVISION	DATE
SURVEY	JSH
DRAWN	AJR
DESIGNED	BG
CHECKED	RJK
APPROVED	JG
PROJ. NO.	193804489
SHEET NUMBER	EC-2

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SUGGESTED EROSION CONTROL PLAN
 UNDERWOOD CREEK DAYLIGHTING
 VILLAGE OF ELM GROVE
 WAUKESHA COUNTY, WISCONSIN

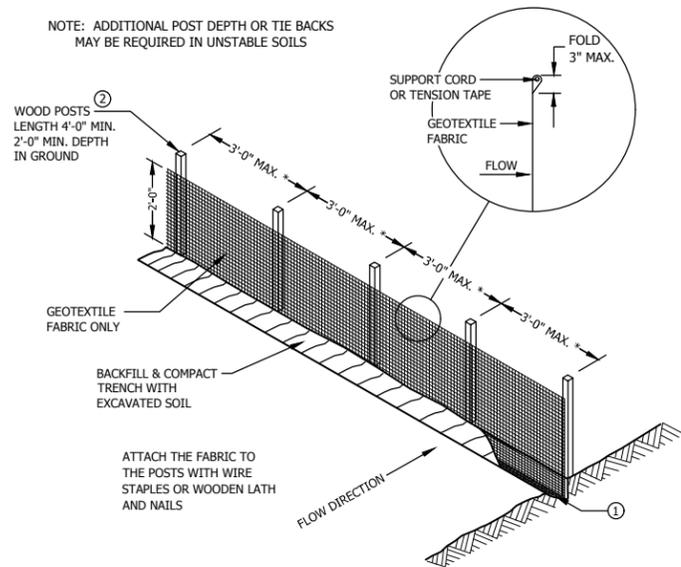
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NO. REVISION	DATE
SURVEY	JSH
DRAWN	AJR
DESIGNED	BG
CHECKED	RJK
APPROVED	JG
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GENERAL NOTES

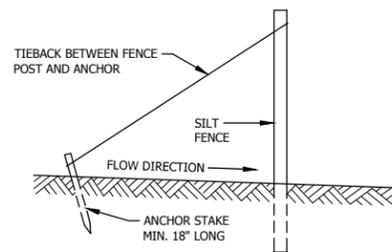
- ① TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL
- ② WOOD POSTS SHALL BE MINIMUM SIZE OF 1 1/8" X 1 1/8" OF OAK OR HICKORY.
- ③ CONSTRUCT SILT FENCE FROM A CONTINUOUS ROLL IF POSSIBLE BY CUTTING LENGTHS TO AVOID JOINTS. IF A JOINT IS NECESSARY USE ONE OF THE FOLLOWING TWO METHODS: A) TWIST METHOD -- OVERLAP THE END POSTS AND TWIST, OR ROTATE AT LEAST 180 DEGREES, B) HOOK METHOD -- HOOK THE END OF EACH SILT FENCE LENGTH.

NOTE: ADDITIONAL POST DEPTH OR TIE BACKS MAY BE REQUIRED IN UNSTABLE SOILS

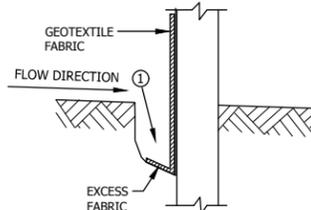


SILT FENCE

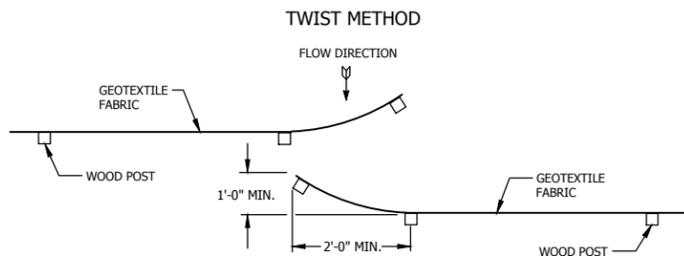
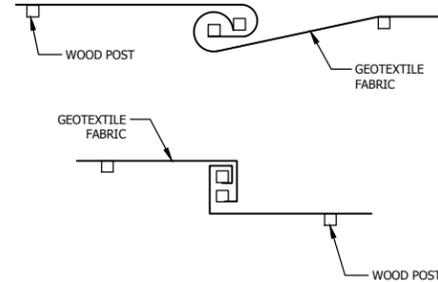
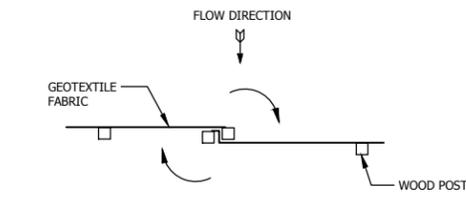
*NOTE: 8'-0" POST SPACING ALLOWED IF A WOVEN GEOTEXTILE FABRIC IS USED.



SILT FENCE TIE BACK
(WHEN ADDITIONAL SUPPORT REQUIRED)



TRENCH DETAIL

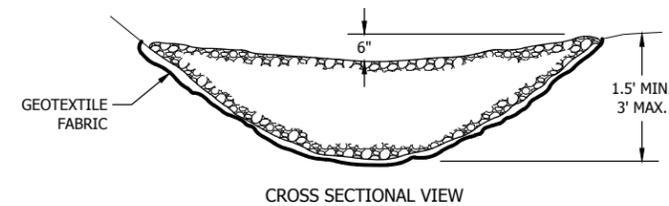


HOOK METHOD
JOINING TWO LENGTH OF SILT FENCE

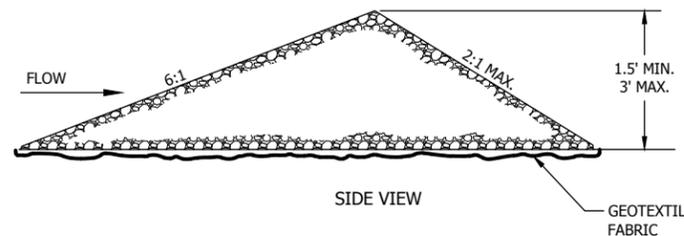
SILT FENCE DETAIL

NTS

1
EC-1

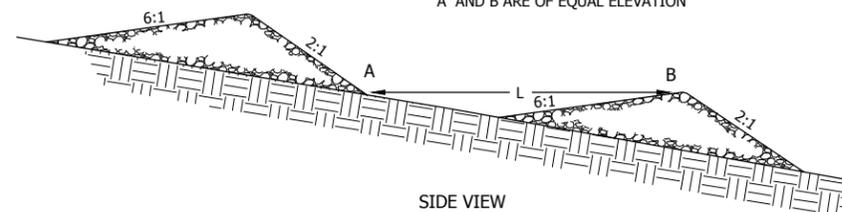


CROSS SECTIONAL VIEW



SIDE VIEW

L = THE DISTANCE SUCH THAT POINTS A AND B ARE OF EQUAL ELEVATION



SIDE VIEW

STONE DITCH CHECK DETAIL

NTS

2

EC-1
EC-2
EC-3

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**FOR PERMITTING/
REGULATOR
REVIEW**

EROSION CONTROL DETAILS
UNDERWOOD CREEK DAYLIGHTING
VILLAGE OF ELM GROVE
WAUKESHA COUNTY, WISCONSIN

DATE OF ISSUANCE
January 10, 2019

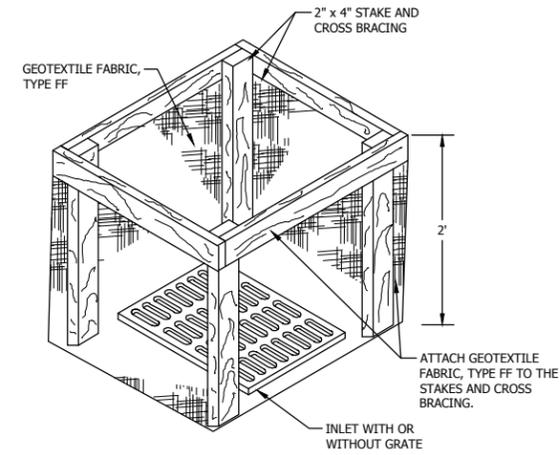
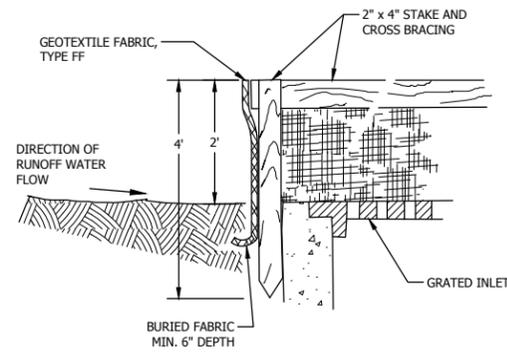
NO. REVISION DATE

SURVEY JSH
DRAWN ####
DESIGNED ####
CHECKED ####
APPROVED ####
PROJ. NO. 193804489

SHEET NUMBER
EC-GD1

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INLET PROTECTION, TYPE A

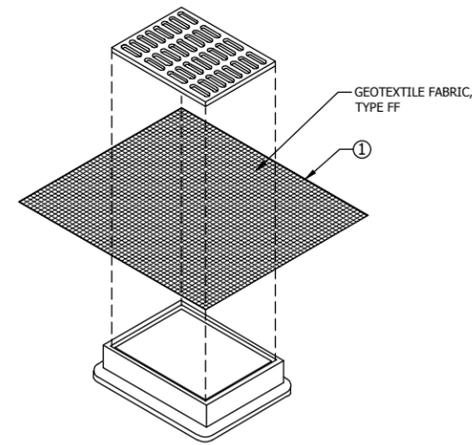
GENERAL NOTES

INLET PROTECTION DEVICES SHALL BE MAINTAINED OR REPLACED AT THE DIRECTION OF THE ENGINEER.

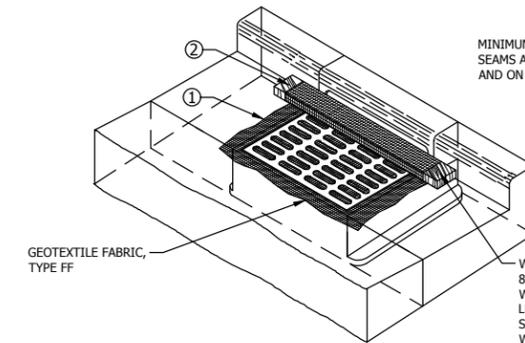
MANUFACTURED ALTERNATIVES APPROVED AND LISTED ON THE DEPARTMENT'S EROSION CONTROL PRODUCT ACCEPTABILITY LIST MAY BE SUBSTITUTED.

WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL INTO THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.

- ① FINISHED SIZE, INCLUDING FLAP POCKETS WHERE REQUIRED, SHALL EXTEND A MINIMUM OF 10" AROUND THE PERIMETER TO FACILITATE MAINTENANCE OR REMOVAL.
- ② FOR INLET PROTECTION, TYPE C (WITH CURB BOX), AN ADDITIONAL 18" OF FABRIC IS WRAPPED AROUND THE WOOD AND SECURED WITH STAPLES. THE WOOD SHALL NOT BLOCK THE ENTIRE HEIGHT OF THE CURB BOX OPENING.
- ③ FLAP POCKETS SHALL BE LARGE ENOUGH TO ACCEPT WOOD 2X4.



INLET PROTECTION, TYPE B (WITHOUT CURB BOX)
 (CAN BE INSTALLED IN ANY INLET WITHOUT A CURB BOX)



INLET PROTECTION, TYPE C (WITH CURB BOX)

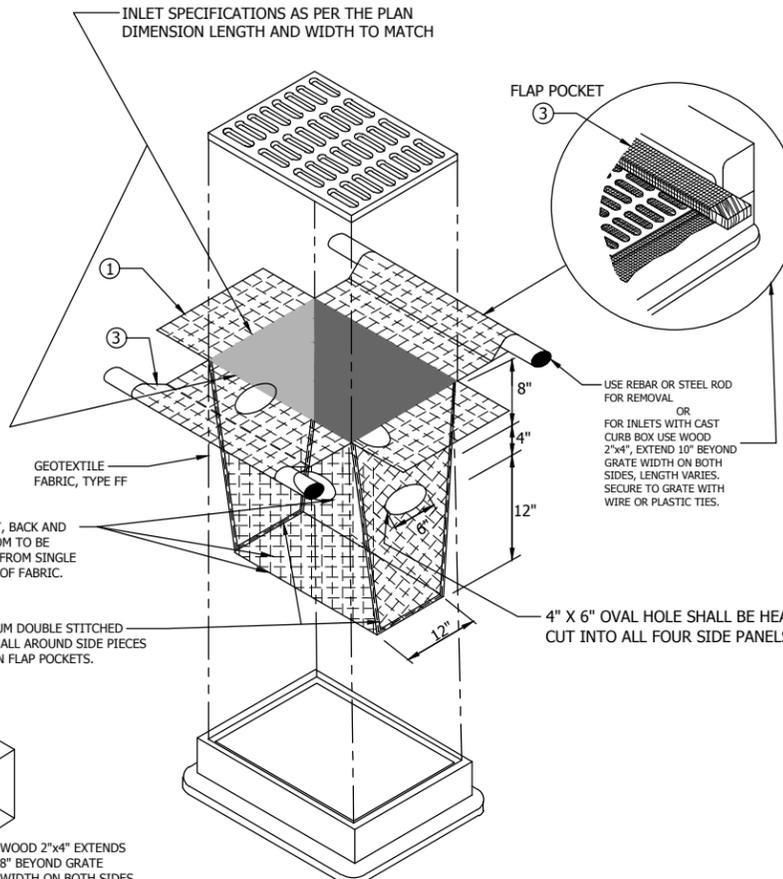
INSTALLATION NOTES

TYPE B & C
 TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE. THE CONTRACTOR SHALL DEMONSTRATE A METHOD OF MAINTENANCE, USING A SEWN FLAP, HAND HOLDS OR OTHER METHOD TO PREVENT ACCUMULATED SEDIMENT FROM ENTERING THE INLET.

TYPE D
 DO NOT INSTALL INLET PROTECTION TYPE D IN INLETS SHALLOWER THAN 30", MEASURED FROM THE BOTTOM OF THE INLET TO THE TOP OF THE GRATE.

TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE.

THE INSTALLED BAG SHALL HAVE A MINIMUM SIDE CLEARANCE, BETWEEN THE INLET WALLS AND THE BAG, MEASURED AT THE BOTTOM OF THE OVERFLOW HOLES, OF 3". WHERE NECESSARY THE CONTRACTOR SHALL CINCH THE BAG, USING PLASTIC ZIP TIES, TO ACHIEVE THE 3" CLEARANCE. THE TIES SHALL BE PLACED AT A MAXIMUM OF 4" FROM THE BOTTOM OF THE BAG.



INLET PROTECTION, TYPE D
 (CAN BE INSTALLED IN ANY INLET TYPE WITH OR WITHOUT A CURB BOX AS PER NOTE ②)

INLET PROTECTION DETAILS

NTS

1
 EC-1
 EC-2
 EC-3

**FOR PERMITTING/
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EROSION CONTROL DETAILS
 UNDERWOOD CREEK DAYLIGHTING
 VILLAGE OF ELM GROVE
 WAUKESHA COUNTY, WISCONSIN

DATE OF ISSUANCE
 January 10, 2019

NO. REVISION DATE

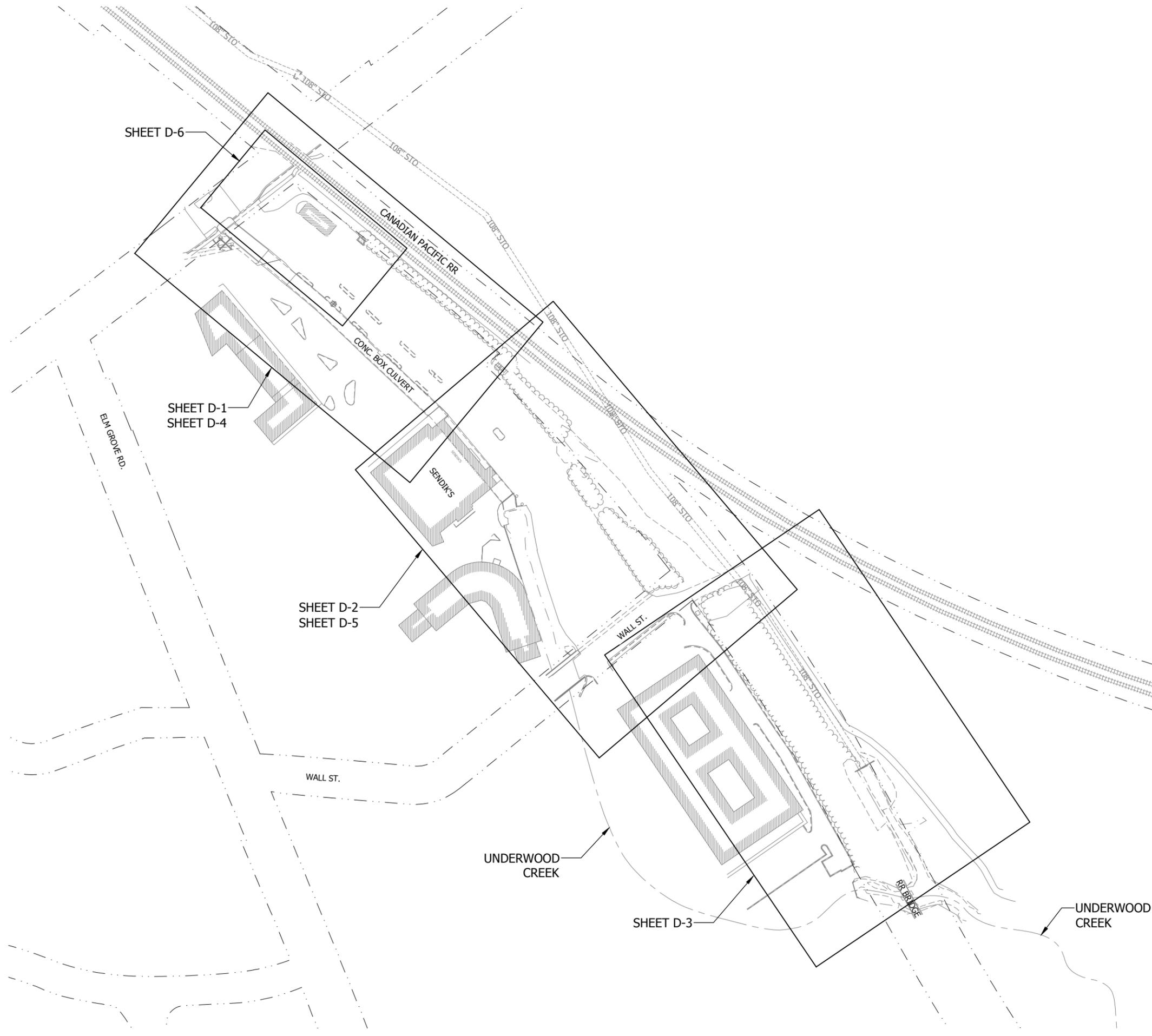
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 DRAWN ####
 DESIGNED ####
 CHECKED ####
 APPROVED ####

PROJ. NO. 193804489

SHEET NUMBER
EC-GD2

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 Mequon, WI 53092
 www.stantec.com

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DEMOLITION AND REMOVALS SHEET INDEX
 UNDERWOOD CREEK DAYLIGHTING
 VILLAGE OF ELM GROVE
 WAUKESHA COUNTY, WISCONSIN

DATE OF ISSUANCE
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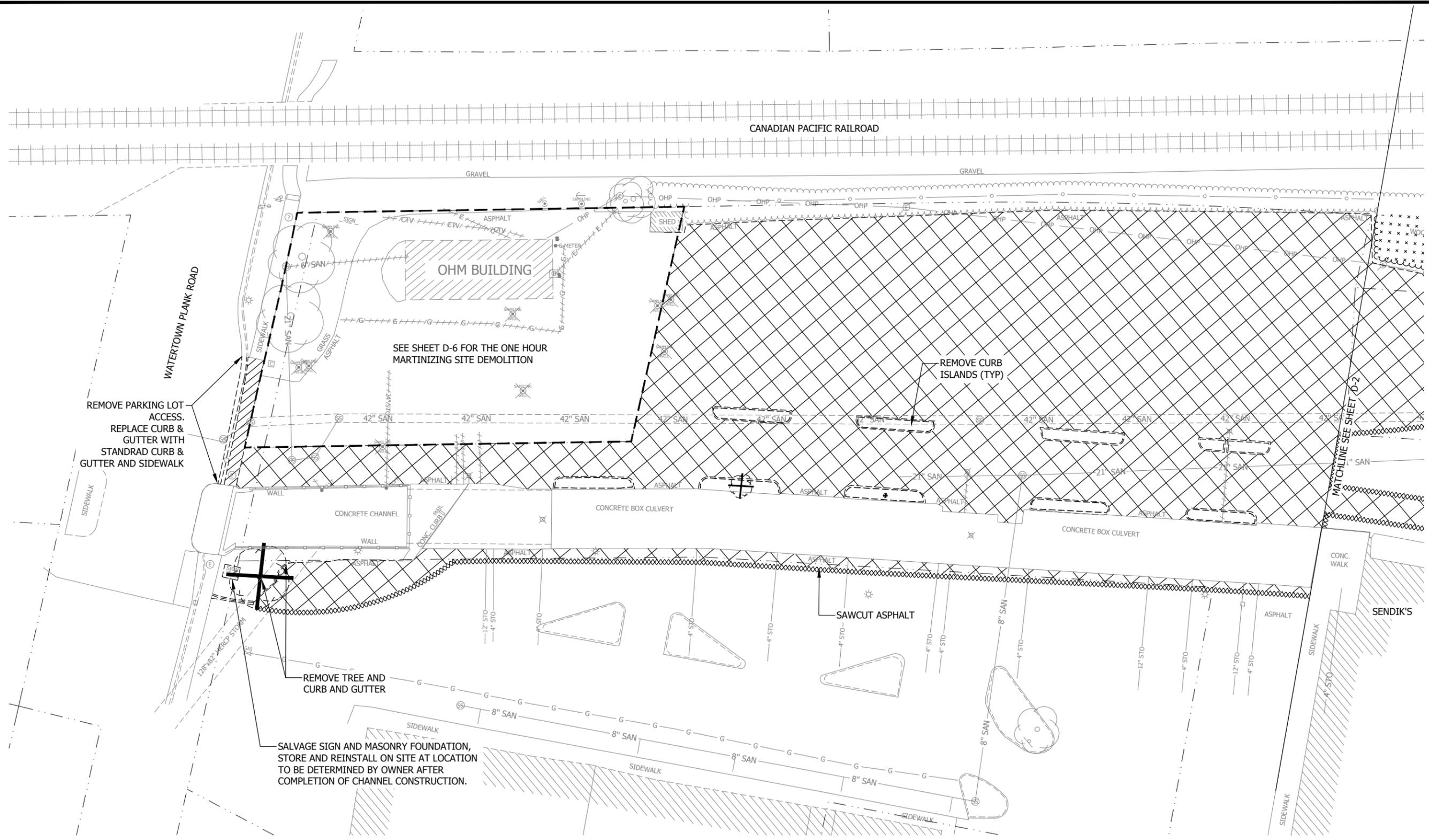
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DRAWN	AJR
DESIGNED	BG
CHECKED	RJK
APPROVED	JG
PROJ. NO.	193804489

SHEET NUMBER
D-0

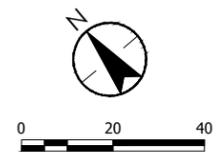
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REMOVALS LEGEND

	SAWCUT ASPHALT
	ASPHALT REMOVAL
	CONCRETE REMOVAL
	CLEAR AND GRUBBING
	REMOVE RIPRAP



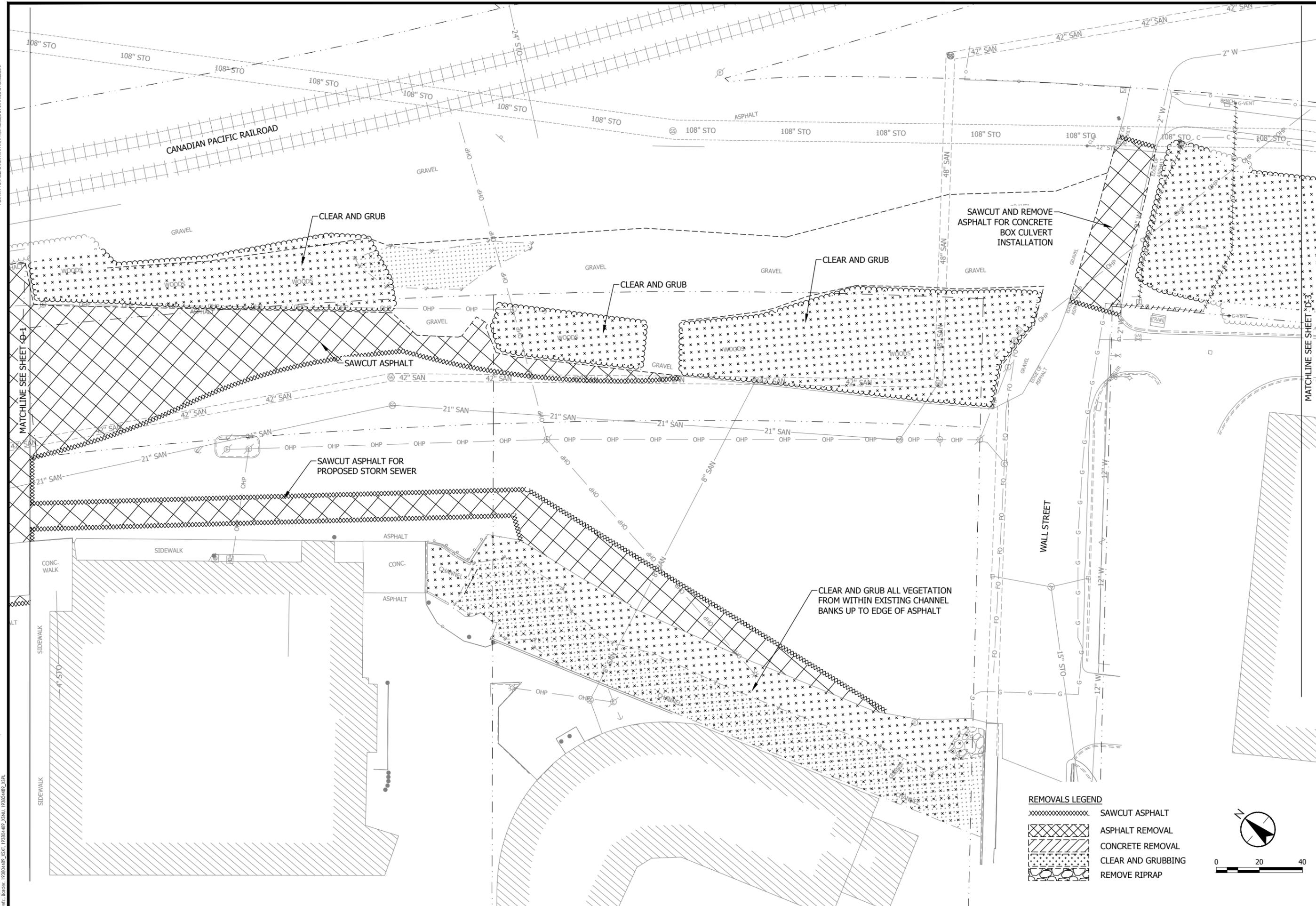
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DEMOLITION AND REMOVALS PLAN - PAVEMENT
 UNDERWOOD CREEK DAYLIGHTING
 VILLAGE OF ELM GROVE
 WAUKESHA COUNTY, WISCONSIN

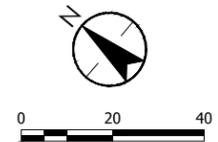
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NO. REVISION	DATE
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DESIGNED	BG
CHECKED	RJK
APPROVED	JG
PROJ. NO.	193804489
SHEET NUMBER	D-1

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- REMOVALS LEGEND**
- XXXXXXXXXXXX SAWCUT ASPHALT
 - XXXXXX ASPHALT REMOVAL
 - XXXXXX CONCRETE REMOVAL
 - XXXXXX CLEAR AND GRUBBING
 - XXXXXX REMOVE RIPRAP



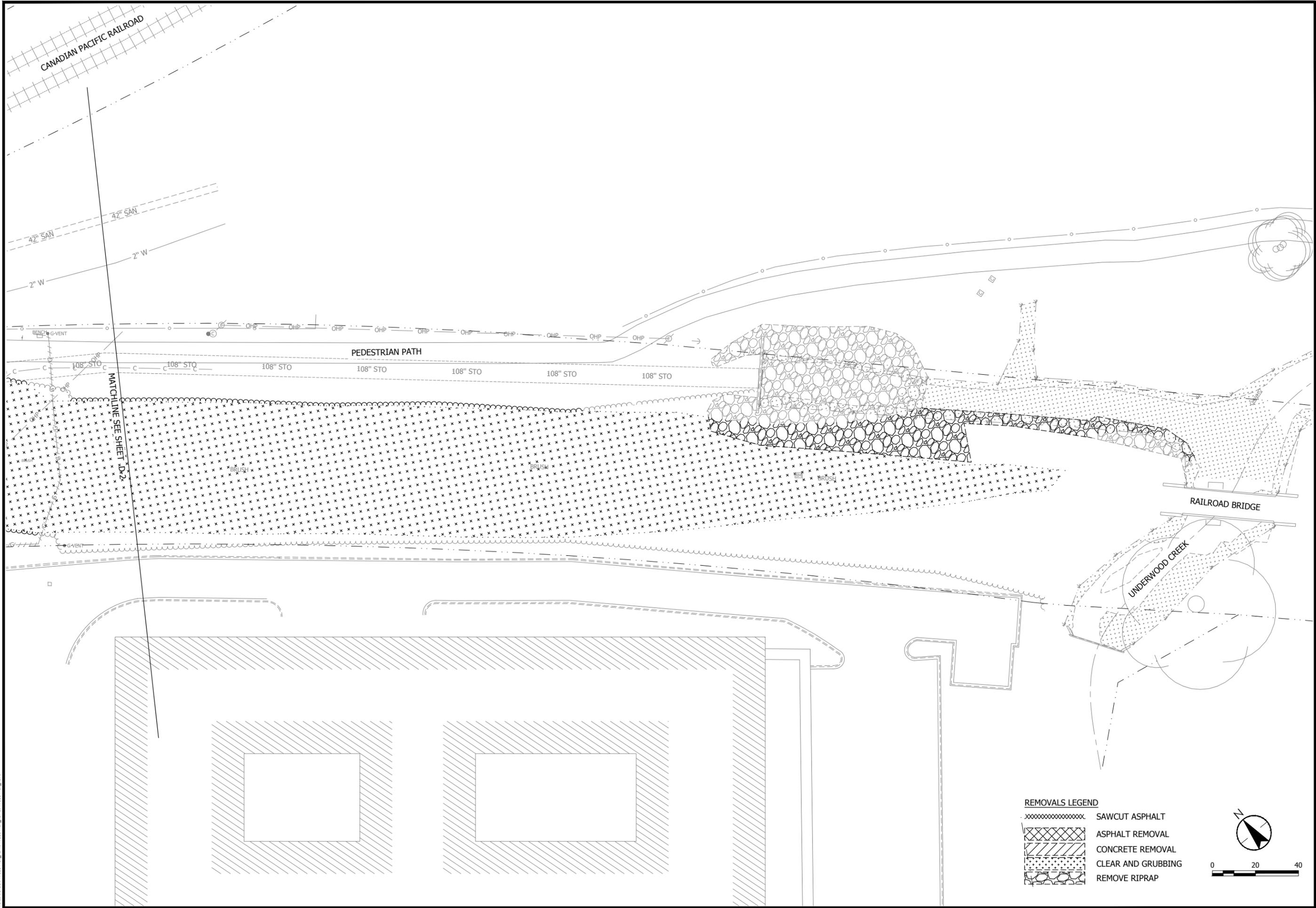
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DEMOLITION AND REMOVALS PLAN - PAVEMENT
 UNDERWOOD CREEK DAYLIGHTING
 VILLAGE OF ELM GROVE
 WAUKESHA COUNTY, WISCONSIN

DATE OF ISSUANCE	January 10, 2019
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APPROVED	JG
PROJ. NO.	193804489
SHEET NUMBER	D-2

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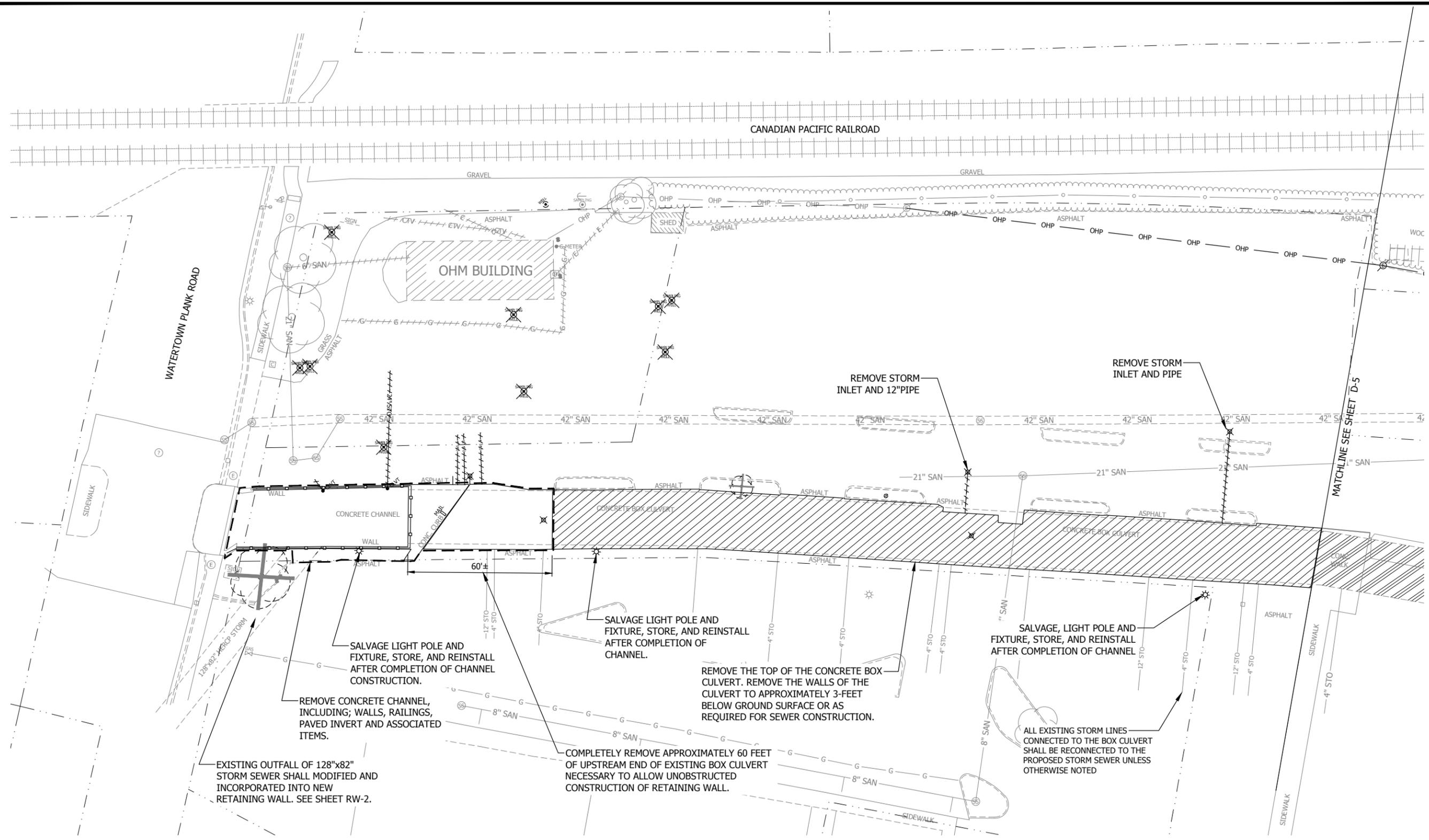
**FOR PERMITTING/
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 REVIEW**

DEMOLITION AND REMOVALS PLAN - PAVEMENT
 UNDERWOOD CREEK DAYLIGHTING
 VILLAGE OF ELM GROVE
 WAUKESHA COUNTY, WISCONSIN

DATE OF ISSUANCE	
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DESIGNED	BG
CHECKED	RJK
APPROVED	JG
PROJ. NO.	193804489
SHEET NUMBER	
D-3	

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 User: Borden, 193804489_2301, 193804489_2301



WATERTOWN PLANK ROAD

CANADIAN PACIFIC RAILROAD

OHM BUILDING

REMOVE STORM INLET AND 12" PIPE

REMOVE STORM INLET AND PIPE

SALVAGE LIGHT POLE AND FIXTURE, STORE, AND REINSTALL AFTER COMPLETION OF CHANNEL CONSTRUCTION.

SALVAGE LIGHT POLE AND FIXTURE, STORE, AND REINSTALL AFTER COMPLETION OF CHANNEL.

SALVAGE, LIGHT POLE AND FIXTURE, STORE, AND REINSTALL AFTER COMPLETION OF CHANNEL.

REMOVE THE TOP OF THE CONCRETE BOX CULVERT. REMOVE THE WALLS OF THE CULVERT TO APPROXIMATELY 3- FEET BELOW GROUND SURFACE OR AS REQUIRED FOR SEWER CONSTRUCTION.

REMOVE CONCRETE CHANNEL, INCLUDING; WALLS, RAILINGS, PAVED INVERT AND ASSOCIATED ITEMS.

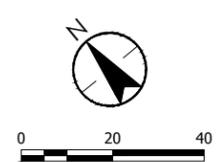
EXISTING OUTFALL OF 128"x82" STORM SEWER SHALL MODIFIED AND INCORPORATED INTO NEW RETAINING WALL. SEE SHEET RW-2.

COMPLETELY REMOVE APPROXIMATELY 60 FEET OF UPSTREAM END OF EXISTING BOX CULVERT NECESSARY TO ALLOW UNOBSTRUCTED CONSTRUCTION OF RETAINING WALL.

ALL EXISTING STORM LINES CONNECTED TO THE BOX CULVERT SHALL BE RECONNECTED TO THE PROPOSED STORM SEWER UNLESS OTHERWISE NOTED

REMOVALS LEGEND

- OHP --- REMOVE OVERHEAD POWER
- C --- C --- REMOVE COMMUNICATIONS LINE
- G --- G --- REMOVE GAS LINE
- 12" STO --- ABANDON/REMOVE STORM SEWER
- ⊗ REMOVE CATCH BASIN
- ⊗ REMOVE SAMPLING WELL
- ▨ CONCRETE REMOVAL
- ▨ ABANDON CONCRETE BOX CULVERT



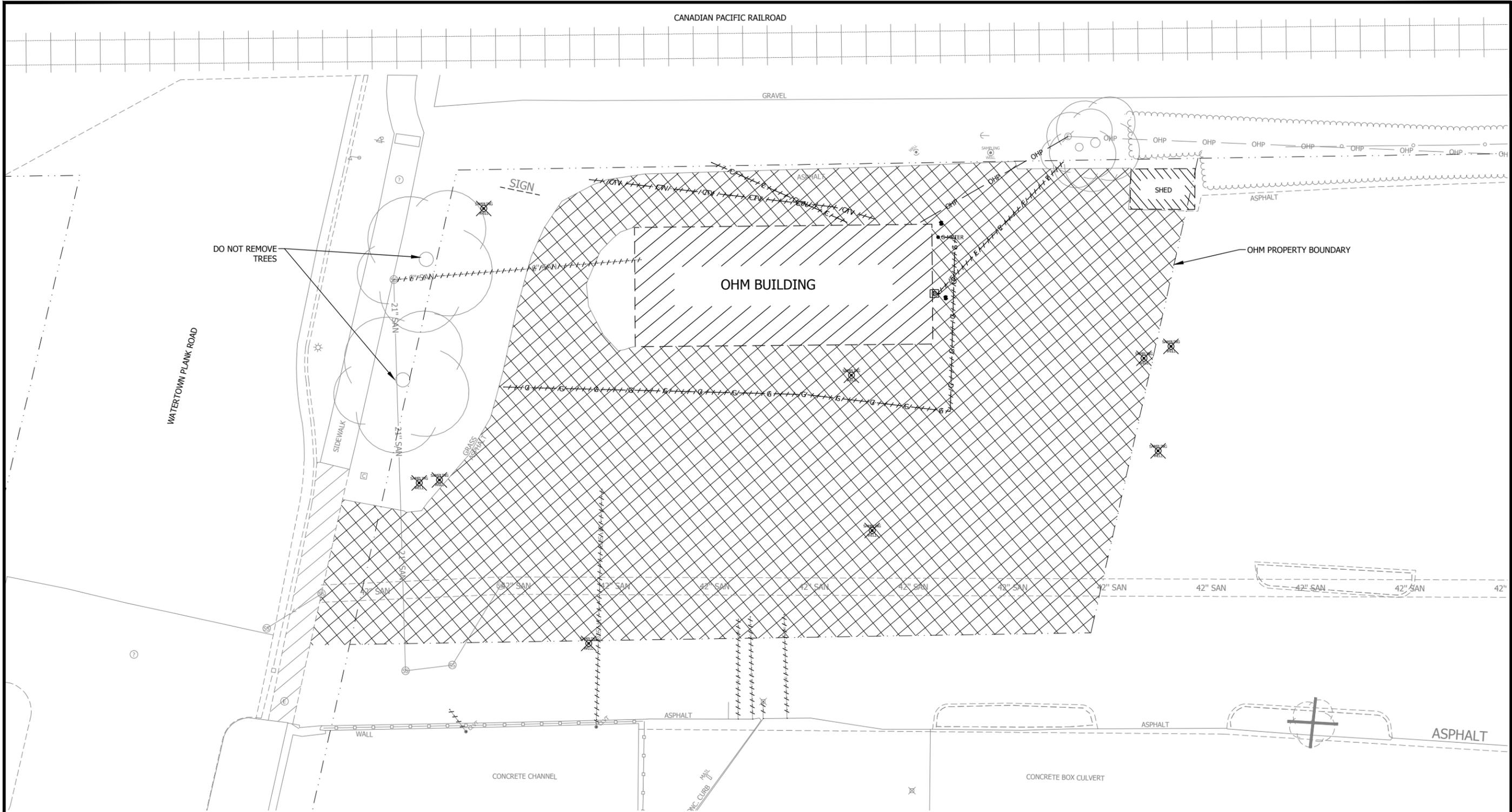
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 REGULATOR
 REVIEW**

DEMOLITION AND REMOVALS PLAN - UTILITIES
 UNDERWOOD CREEK DAYLIGHTING
 VILLAGE OF ELM GROVE
 WAUKESHA COUNTY, WISCONSIN

DATE OF ISSUANCE	January 10, 2019
NO. REVISION	DATE
SURVEY	JSH
DRAWN	AJR
DESIGNED	BG
CHECKED	RJK
APPROVED	JG
PROJ. NO.	193804489
SHEET NUMBER	D-4

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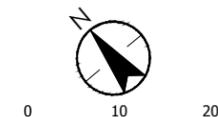


NOTES

- DEMOLITION OF ONE HOUR MARTINIZING (OHM) BUILDING, INCLUDING BUILDING, SHED, UTILITIES, AND MONITORING WELLS, TO BE COMPLETED BY OTHERS.
- CONTRACTOR TO REMOVE ALL REMAINING ASPHALT WITHIN OHM PROPERTY LIMITS.

REMOVALS LEGEND

- +++++R++++ REMOVE UNDERGROUND ELECTRIC
- OHP — REMOVE OVERHEAD POWER
- +++++C++++ REMOVE COMMUNICATIONS LINE
- +++++G++++ REMOVE GAS LINE
- ⊗ REMOVE SAMPLING WELL
- ▨ ASPHALT REMOVAL
- ▩ BUILDING REMOVAL



DEMOLITION PLAN - ONE HOUR MARTINIZING (OHM) SITE

UNDERWOOD CREEK DAYLIGHTING
 VILLAGE OF ELM GROVE
 WAUKESHA COUNTY, WISCONSIN

DATE OF ISSUANCE
 January 10, 2019

NO. REVISION DATE

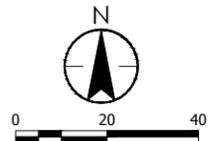
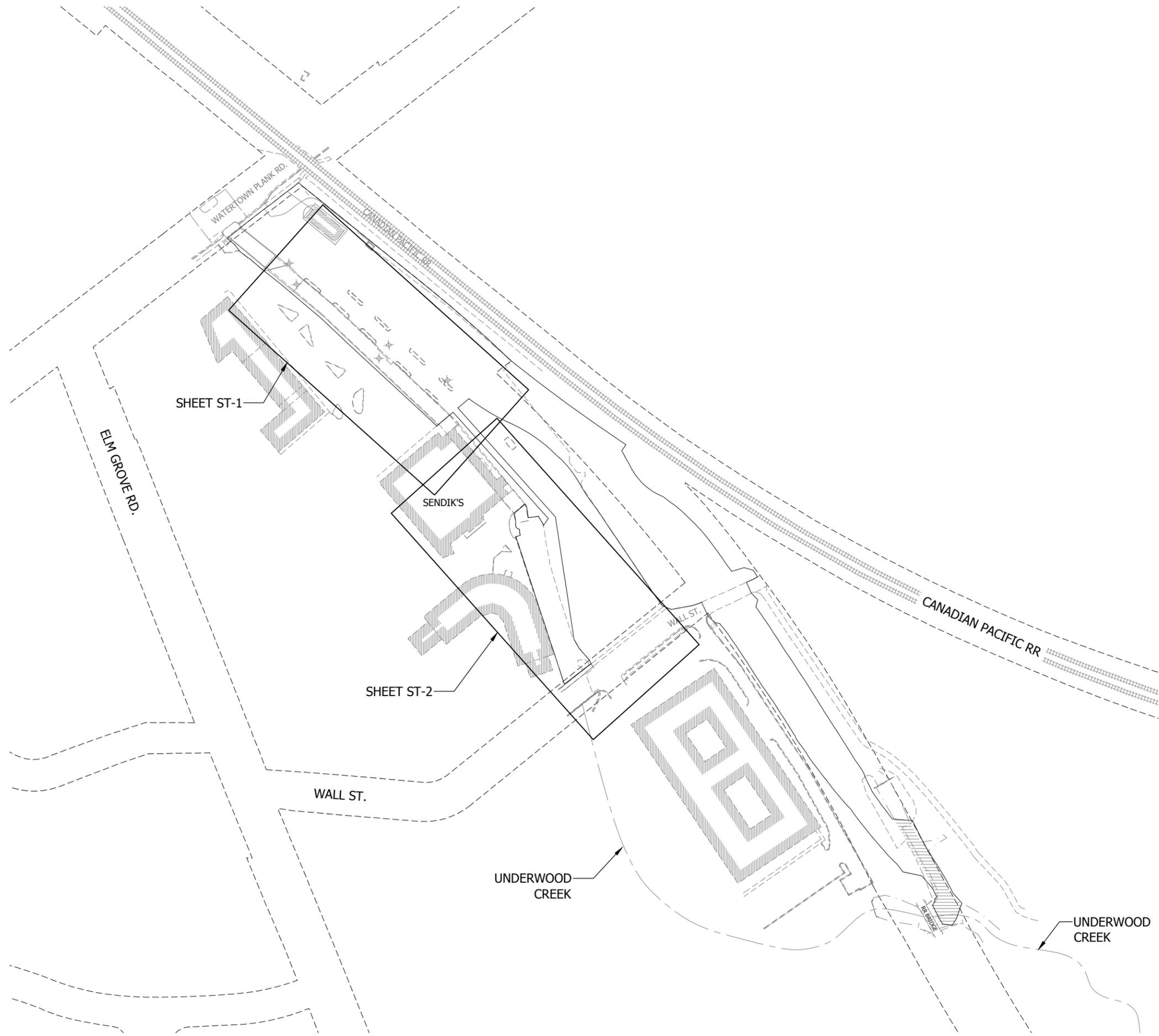
NO.	REVISION	DATE

SURVEY	JSH
DRAWN	AJR
DESIGNED	BG
CHECKED	RJK
APPROVED	JG
PROJ. NO.	193804489

SHEET NUMBER
D-6

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STORM SEWER SHEET INDEX
 UNDERWOOD CREEK DAYLIGHTING
 VILLAGE OF ELM GROVE
 WAUKESHA COUNTY, WISCONSIN

DATE OF ISSUANCE
 January 10, 2019

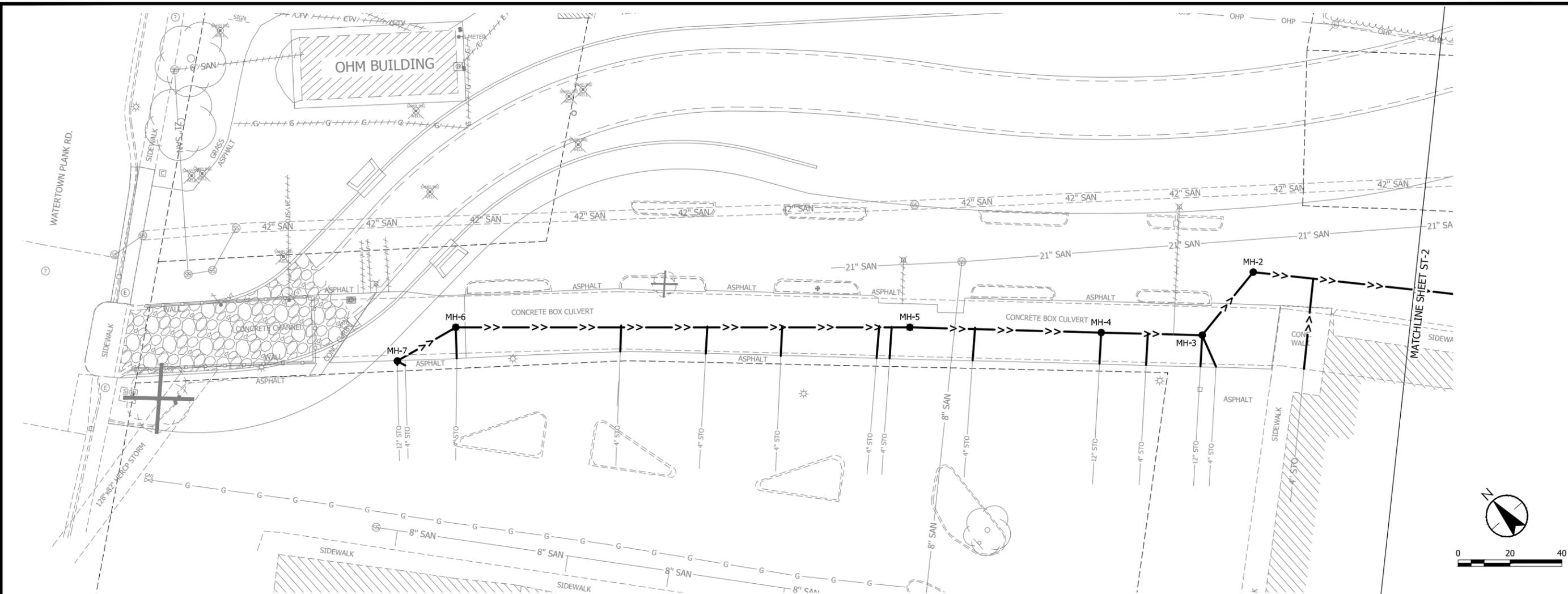
NO	REVISION	DATE

SURVEY	JSH
DRAWN	AJR
DESIGNED	BG
CHECKED	RJK
APPROVED	JG
PROJ. NO.	193804489

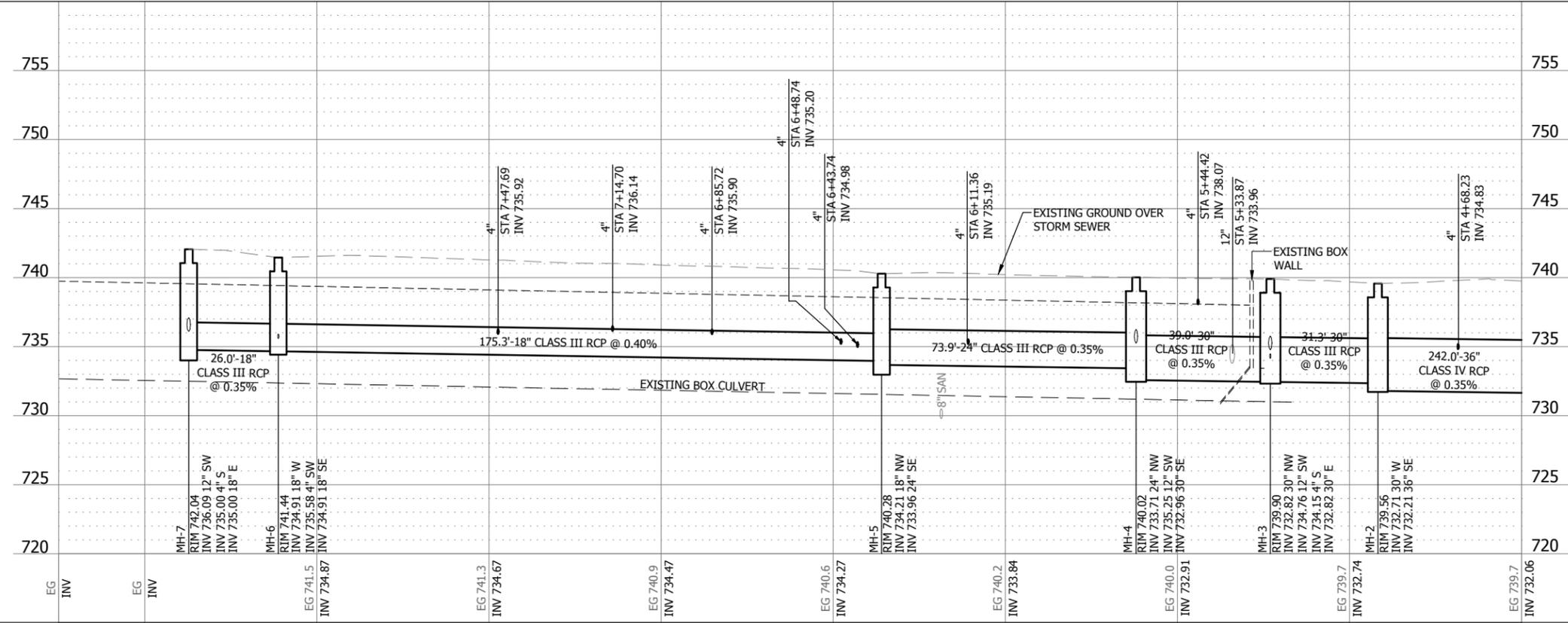
SHEET NUMBER
ST-0

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 User: J. Bender, 193804489_25X1, 193804489_2_SPL, 193804489_25X0



NOTE:
 STORM SEWER BETWEEN MH-7 AND UPSTREAM OF MH-2 IS CONSTRUCTED WITHIN ABANDONED CULVERT WALLS. SEE DETAIL 2 ST-GD2



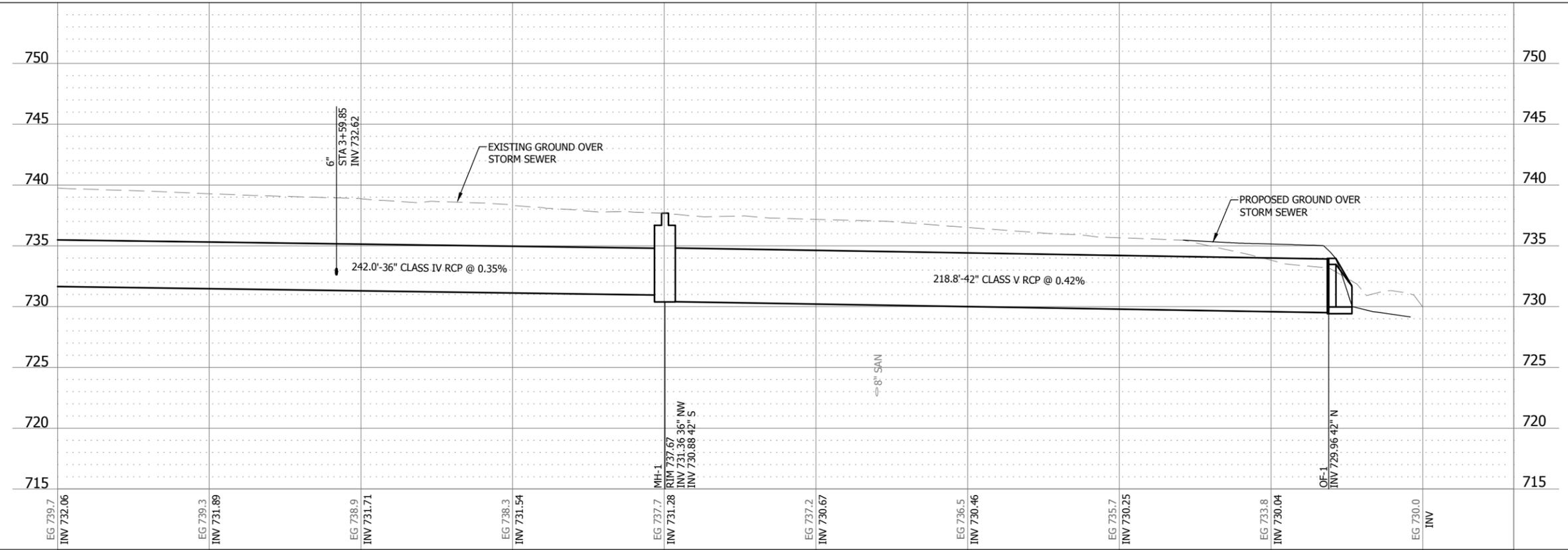
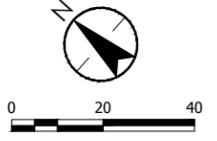
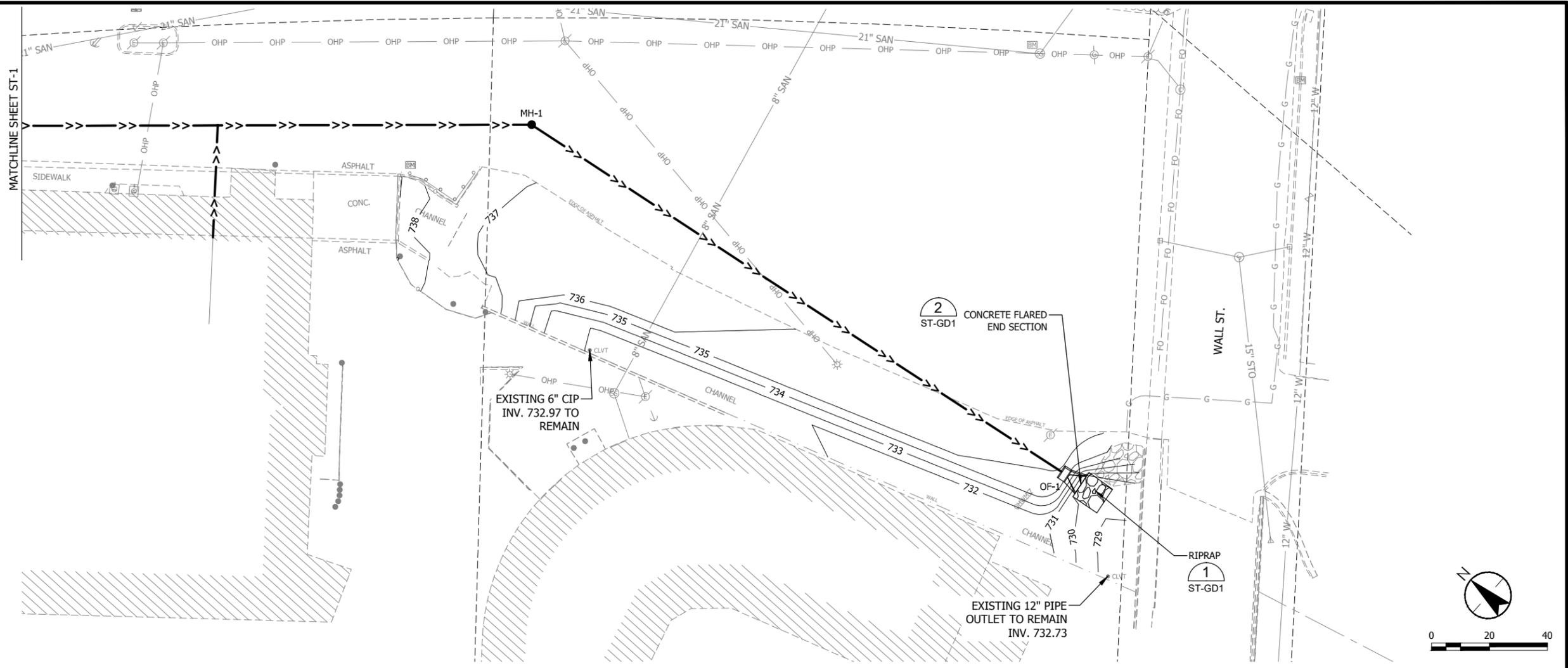
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STORM SEWER PLAN & PROFILE
 UNDERWOOD CREEK DAYLIGHTING
 VILLAGE OF ELM GROVE
 WAUKESHA COUNTY, WISCONSIN

DATE OF ISSUANCE	January 10, 2019
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SHEET NUMBER	ST-1

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STORM SEWER PLAN & PROFILE
 UNDERWOOD CREEK DAYLIGHTING
 VILLAGE OF ELM GROVE
 WAUKESHA COUNTY, WISCONSIN

DATE OF ISSUANCE	
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SHEET NUMBER	

ST-2

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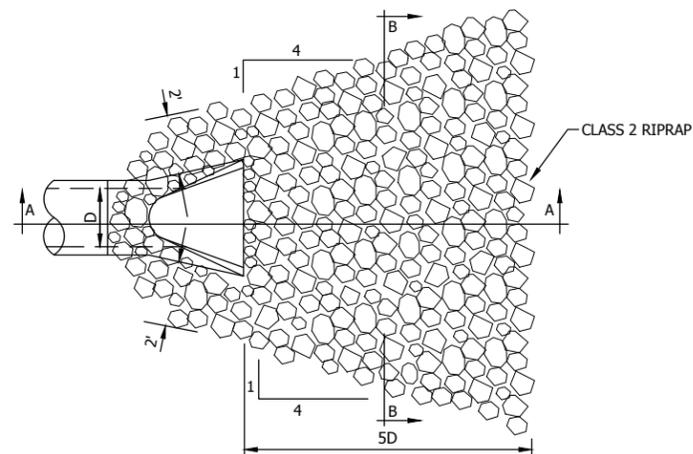
STRUCTURE TABLE

STRUCTURE	DESCRIPTION	PLAN & PROFILE DWG NO.	SIZE	CASTING		RIM OR FLOW LINE	PIPE(S) IN		PIPE(S) OUT		NORTHING	EASTING
				FRAME	GRATE		SIZE	INVERT	SIZE	INVERT		
OF-1	FLARED END SECTION WITH SAFETY RACK	ST-2	--	NEENAH R-2695-A	TYPE D	735.42	42"	729.96	--	--	385312.96	2514188.77
MH-1	STORM INLET MANHOLE	ST-2	72"	NEENAH R-2695-A	TYPE D	737.68	36"	731.36	42"	730.88	385536.9	2514154.61
MH-2	STORM INLET MANHOLE	ST-1	60"	NEENAH R-2695-A	TYPE D	739.57	30"	732.71	36"	732.21	385716.91	2513992.86
MH-3	STORM INLET MANHOLE	ST-2	60"	NEENAH R-2695-A	TYPE D	739.90	30"	732.82	30"	732.82	385711.93	2513962.01
							12"	734.76				
							4"	734.15				
MH-4	STORM INLET MANHOLE	ST-1	60"	NEENAH R-2695-A	TYPE D	740.02	24"	733.71	30"	732.96	385738.69	2513933.63
MH-5	STORM INLET MANHOLE	ST-1	48"	NEENAH R-2695-A	TYPE D	740.28	18"	734.21	24"	733.96	385789.51	2513879.96
MH-6	STORM INLET MANHOLE	ST-1	48"	NEENAH R-2695-A	TYPE D	741.45	18"	734.91	18"	734.83	385906.45	2513749.42
MH-7	STORM INLET MANHOLE	ST-1	48"	NEENAH R-2695-A	TYPE D	742.04	12"	736.09	18"	735.00	385911.85	2513723.95
							4"	735.00				

- NOTE:
- NORTHING AND EASTING FOR MANHOLES ARE CENTER OF STRUCTURE.
 - NORTHING AND EASTING FOR FLARED END SECTION (FES) TO DOWNSTREAM END OF FES.

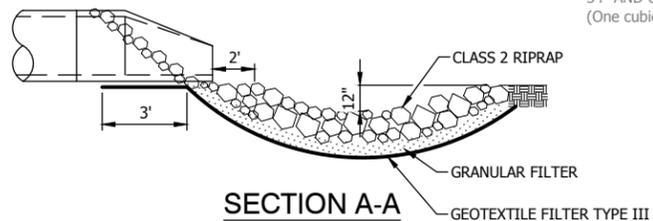
REINFORCED CONCRETE APRON ENDWALLS									
PIPE DIA. (IN.)	DIMENSIONS (Inches)							APPROX. SLOPE	
	T	A	B	C	D	E	G		
12	2	4	24	48 1/8	72 3/8	24	2	3 to 1	
15	2 1/4	6	27	46	73	30	2 1/4	3 to 1	
18	2 1/2	9	27	46	73	36	2 1/2	3 to 1	
21	2 3/4	9	36	37 1/2	73 1/2	42	2 3/4	3 to 1	
24	3	9 1/2	43 1/2	30	73 1/2	48	3	3 to 1	
27	3 1/4	10 1/2	49 1/2	24	73 1/2	54	3 1/4	3 to 1	
30	3 1/2	12	54	19 3/4	73 1/2	60	3 1/2	3 to 1	
36	4	15	63	34 3/4	97 3/4	72	4	3 to 1	
42	4 1/2	21	63	35	98	78	4 1/2	3 to 1	
48	5	24	72	26	98	84	5	3 to 1	
54	5 1/2	27	65	33 1/4 - 35	98 1/4 - 100	90	5 1/2	2 2/5 to 1	
60	6	30 - 35	60	39	99	96	5	2 to 1	
66	6 1/2	24 - 30	72 - 78	21 - 27	99	102	5 1/2	2 to 1	
72	7	24 - 36	78	21	99	108	6	2 to 1	
78	7 1/2	24 - 36	78	21	99	114	6 1/2	2 to 1	
84	8	36	90 1/2	21	111 1/2	120	6 1/2	1 1/2 to 1	
90	8 1/2	41	87 1/2	24	111 1/2	132	6 1/2	1 1/2 to 1	

*MINIMUM
**MAXIMUM

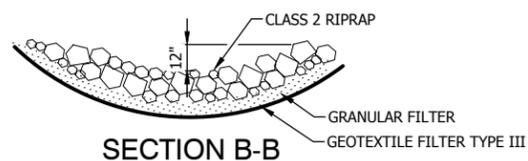


PLAN

CLASS 2 RIPRAP REQUIREMENTS
 12" TO 24" 4 cubic yards
 27" TO 33" 8 cubic yards
 36" TO 48" 12 cubic yards
 54" AND UP 16 cubic yards
 (One cubic yard is approximately 2,800 lbs.)



SECTION A-A



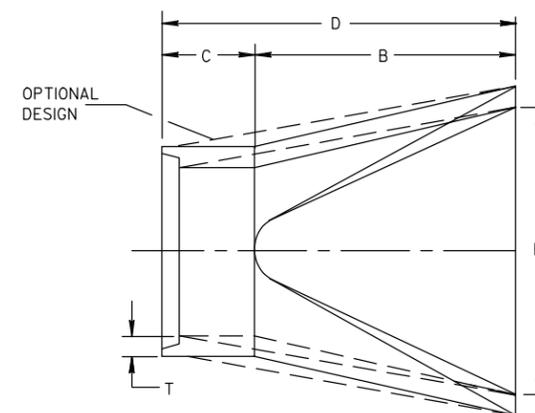
SECTION B-B

STORM OUTFALL RIPRAP DETAIL

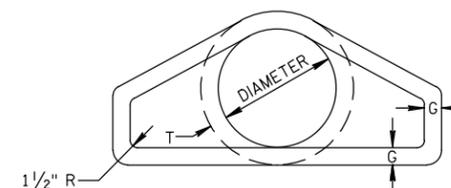
NTS

1

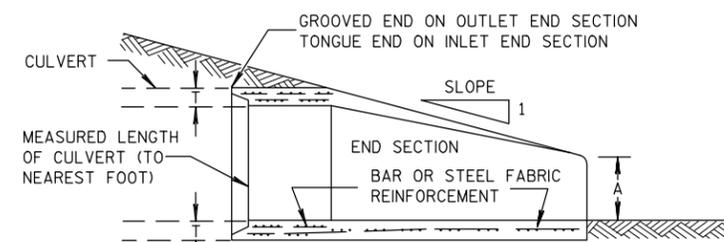
EC-2
ST-2



PLAN



END VIEW



LONGITUDINAL SECTION

CONCRETE ENDWALL DETAIL

NTS

2

EC-2
ST-2



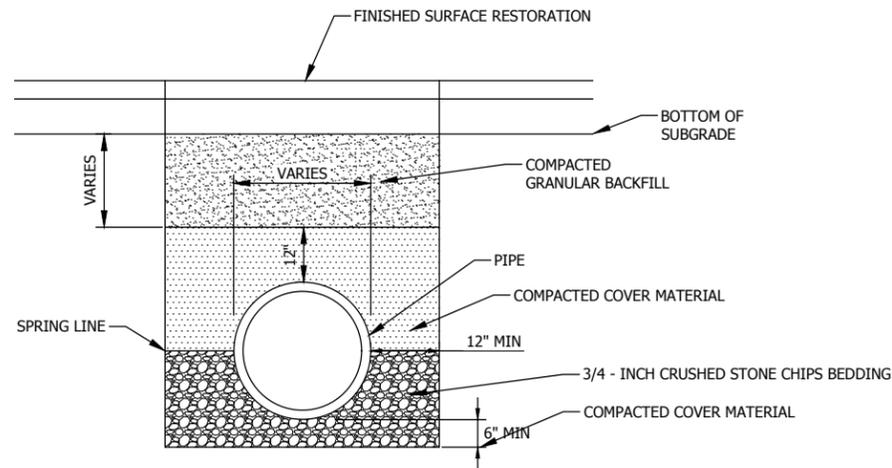
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STORM SEWER QUANTITIES AND DETAILS
 UNDERWOOD CREEK DAYLIGHTING
 VILLAGE OF ELM GROVE
 WAUKESHA COUNTY, WISCONSIN

DATE OF ISSUANCE	January 10, 2019
NO. REVISION	DATE
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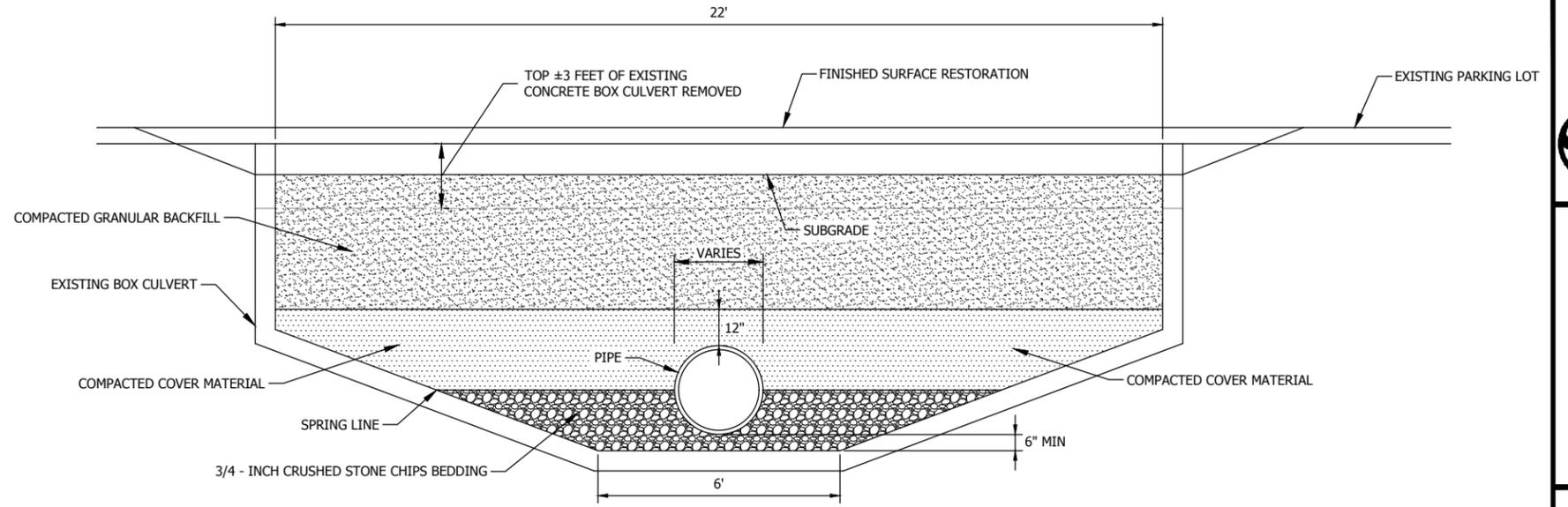
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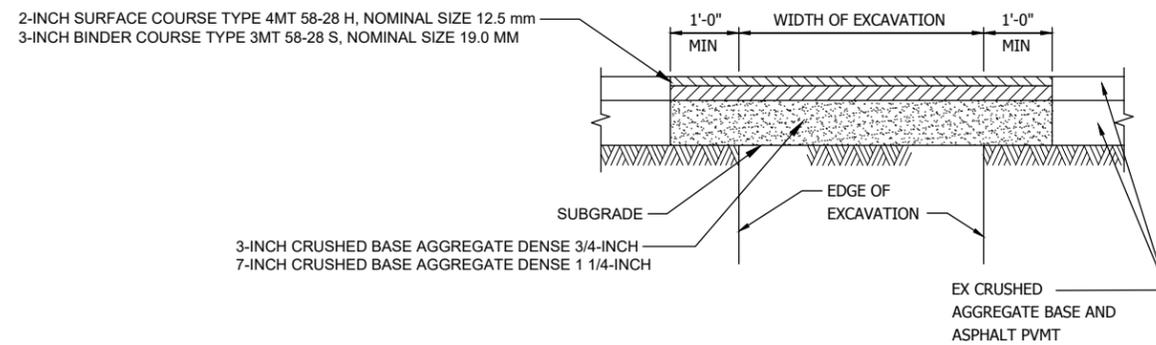
PIPE CONSTRUCTED IN NEW TRENCH
 NOT TO SCALE

1
 ST-2

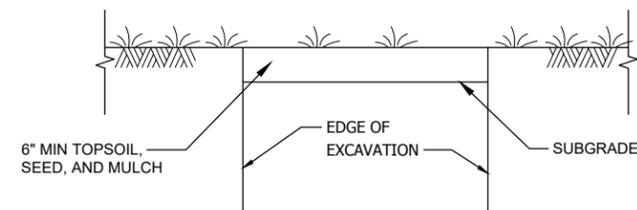


PIPE CONSTRUCTED WITHIN ABANDONED CULVERT WALLS
 NOT TO SCALE

2
 ST-1



ASPHALT PARKING LOT RESTORATION TYPE "A"



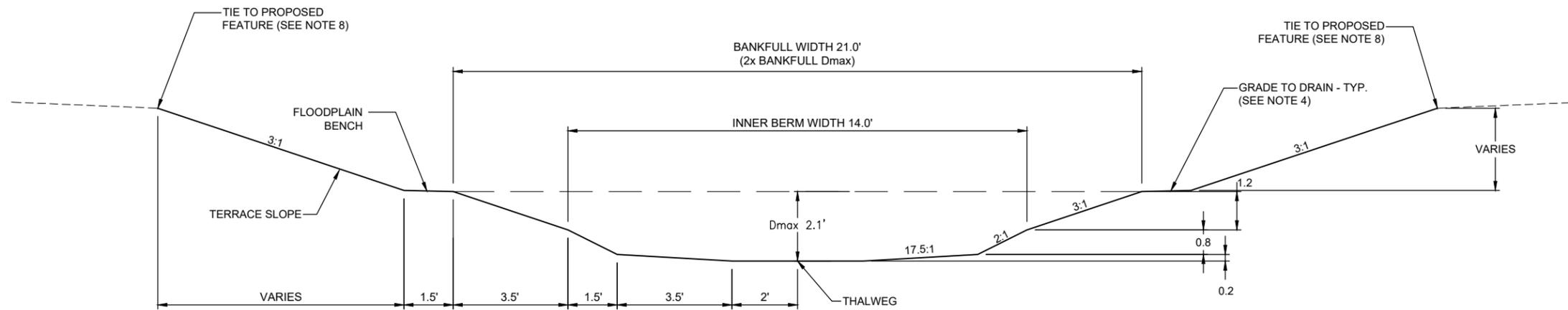
TURF GRASS RESTORATION TYPE "B"

NO.	REVISION	DATE

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APPROVED	JG
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TYPICAL RIFFLE CROSS SECTION

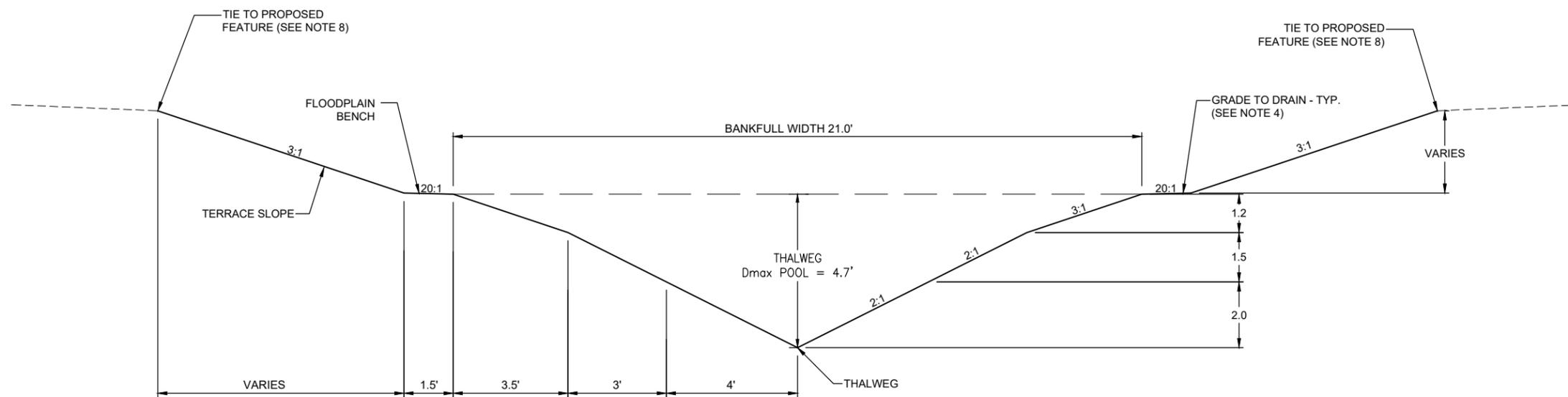
1" = 4'



CH-1
 CH-3
 CH-2

TYPICAL CROSS SECTION NOTES

1. TYPICAL SECTIONS ARE VIEWED FACING DOWNSTREAM.
2. TYPICAL SECTION VERTICAL CONTROL SHALL BE ABOUT THE THALWEG POINT PER PLAN AND PROFILE VIEWS.
3. ALL GRADING, EXCAVATION, AND FILL SHALL BE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATIONS.
4. GRADING OF ALL AREAS OUTSIDE OF THE PROPOSED CHANNEL (INCLUDING FLOOD PRONE AREAS, TERRACE SLOPES AND WETLANDS) SHALL ALLOW FOR MINOR VARIATIONS IN ELEVATION. VARIATIONS OF UP TO 0.5' ARE ACCEPTABLE.
5. THE EXISTING STREAM CHANNEL SHALL BE PARTIALLY FILLED AS SHOWN ON GRADING PLAN.
6. REFER TO PROFILE SHEETS FOR SPECIFIC LOCATIONS OF TYPICAL SECTION APPLICATION.
7. TRANSITION BETWEEN RIFFLE AND POOL OR POOL AND RIFFLE TYPICAL CROSS SECTIONS SHALL BE EVENLY GRADED.
8. SLOPE TRANSITIONS BETWEEN TOP OF CHANNEL BANK, FLOODPLAIN BENCH, TERRACE SLOPE AND EXISTING SURROUNDING GROUND SHALL BE GRADED TO PROVIDE A SMOOTH AND ROUNDED TRANSITION. REFER TO PLANTING NOTES AND DETAILS FOR ADDITIONAL SLOPE TRANSITION GRADING/SURFACE PREPARATION.
9. IF SITE CONDITIONS (I.E. BEDROCK) DO NOT ALLOW FOR APPLICATION OF THE TYPICAL CROSS-SECTION AND/OR EVEN TRANSITION BETWEEN EXISTING AND PROPOSED BED/BANK FEATURES THEN THE PROPOSED GRADING SHALL BE ADJUSTED TO INCORPORATE THE NATURAL VARIATION. THE ENGINEER SHALL BE NOTIFIED OF ADVERSE SITE CONDITIONS AND DETERMINE THE APPROPRIATE MEANS OF INCORPORATION.



TYPICAL POOL CROSS SECTION

1" = 4'

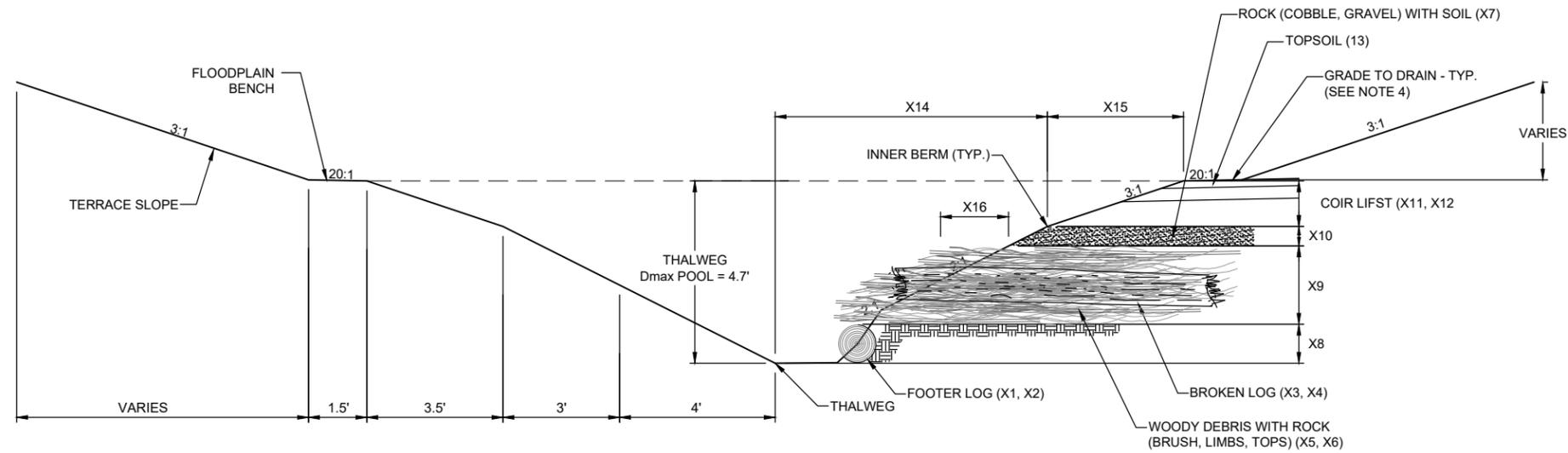


CH-1
 CH-3
 CH-2

NO	REVISION	DATE

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DETAIL - TOE WOOD (POOL SECTION)

NTS

1
CH-1, CH-3, CH-2

TOE WOOD DIMENSIONS			
VARIABLE	REQUIRED	TYPICAL UNIT	DESCRIPTION
X1	10.0 - 12.0	IN.	FOOTER LOG - DIAMETER
X2	10.0 - 15.0	FT.	FOOTER LOG - LENGTH
X3	3.0 - 6.0	FT.	BROKEN LOG - DIAMETER
X4	9.0 - 12.0	FT.	BROKEN LOG - LENGTH
X5	0.5 - 3.0	IN.	WOODY DEBRIS - DIAMETER
X6	9.0 - 12.0	FT.	WOODY DEBRIS - LENGTH
X7	9.0 - 12.0	IN.	ROCK BACKFILL (D85)
	6.0 - 8.0	IN.	ROCK BACKFILL (D50)
	3.0 - 4.0	IN.	ROCK BACKFILL (D35)
X8	1.0	FT.	SOIL
X9	24.0	IN.	TOE WOOD - THICKNESS
X10	6.0	IN.	BACKFILL OVER TOE WOOD
X11	2.0	EA.	# OF COIR LIFTS
X12	5.0 - 5.5	IN.	COIR LIFT - THICKNESS (EA)
X13	4.0	IN.	TOP SOIL - DEPTH
X14	7.0	FT.	LOWER BANK SLOPE - WIDTH
X15	6.0 - 10.0	IN.	UPPER BANK SLOPE - WIDTH
X16	18.0 - 24.0	IN.	TOE WOOD PROJECTION BEYOND BANK SURFACE

NOTES:

- TOE WOOD WILL BE CONSTRUCTED IN NEWLY GRADED CHANNEL SECTIONS AND EXISTING CHANNEL SECTIONS AT THE LOCATIONS SHOWN ON THE PLANS AND IN ACCORDANCE WITH THIS DETAIL AND THE SPECIFICATIONS SECTION 31 99 10 IN-STREAM STRUCTURES.
- ALL WOODY DEBRIS USED IN THE CONSTRUCTION OF THE TOE WOOD STRUCTURES SHALL BE FROM ON-SITE SOURCES. OFF-SITE WOODY MATERIAL IS PROHIBITED. WOODY DEBRIS CLEARED FROM WITHIN THE CUT/FILL LIMITS OF THE PROPOSED CHANNEL WILL BE USED TO CONSTRUCT THE TOE WOOD.
- THE FINISHED EXPOSED SURFACE OF THE TOE WOOD AND CHANNEL BANK SHALL GENERALLY MATCH THE PROPOSED CHANNEL CROSS SECTIONS AND SLOPES. WOODY DEBRIS WILL PROJECT RANDOMLY FROM THE BANK SURFACE BELOW THE WATER LINE. THE CONTRACTOR WILL TRANSITION THE PROPOSED TOE WOOD TO THE PROPOSED CHANNEL FEATURES (BED, BANKS, AND CHANNEL BOTTOM) SMOOTHLY AND EVENLY WITHOUT ABRUPT CHANGES IN GRADE.

Plot Date: 01/10/2019 - 4:52pm
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User: bcorle, 193804489, 2501, 193804489, 2501

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January 10, 2019

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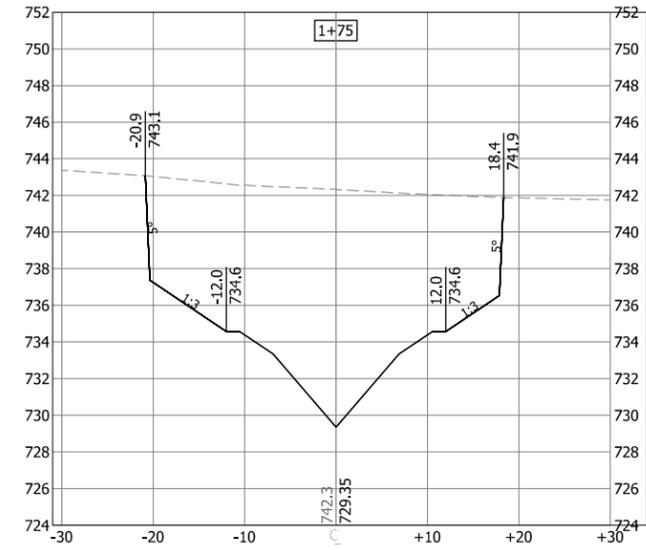
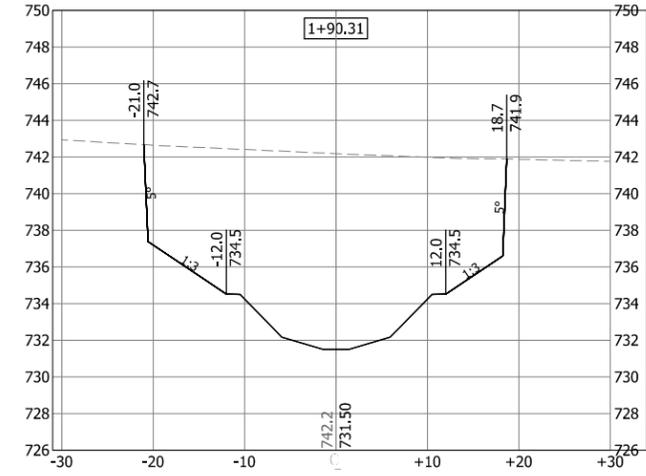
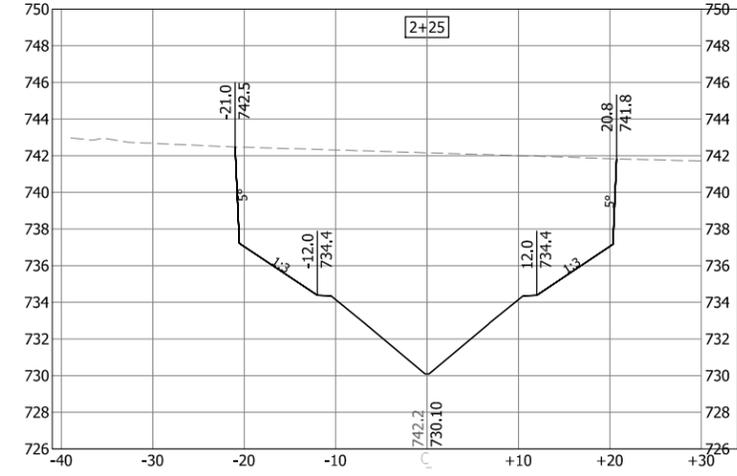
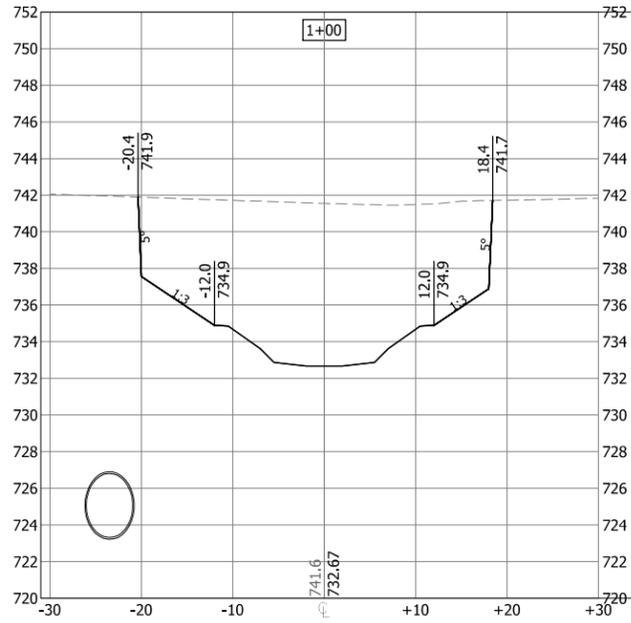
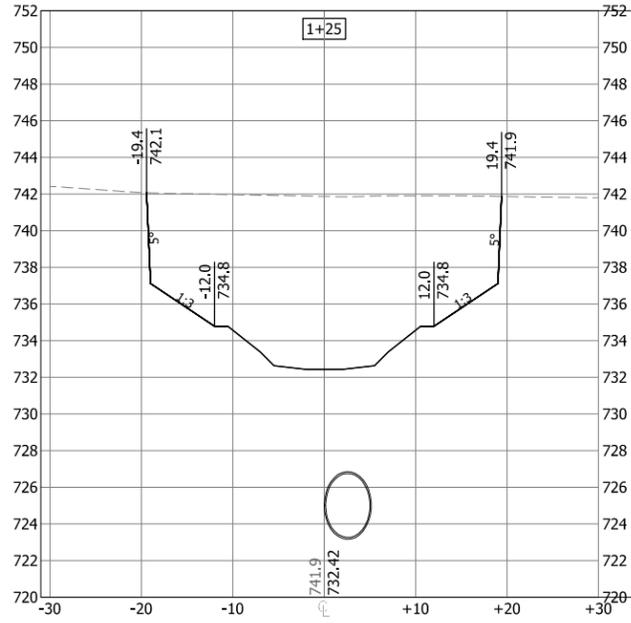
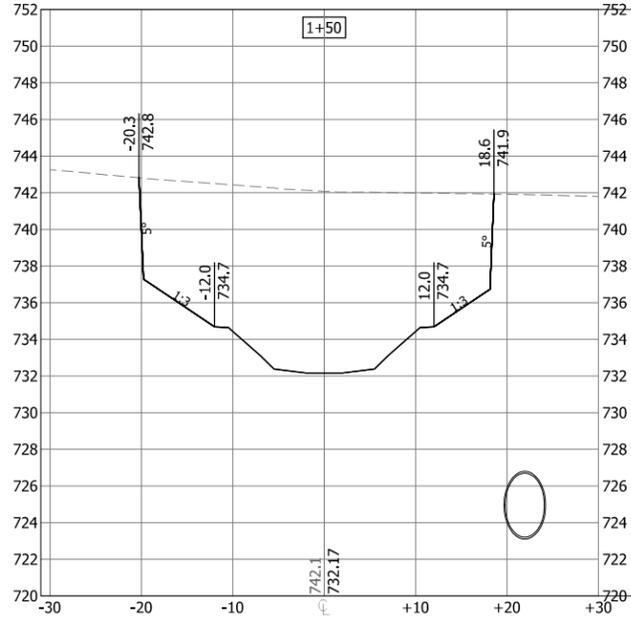
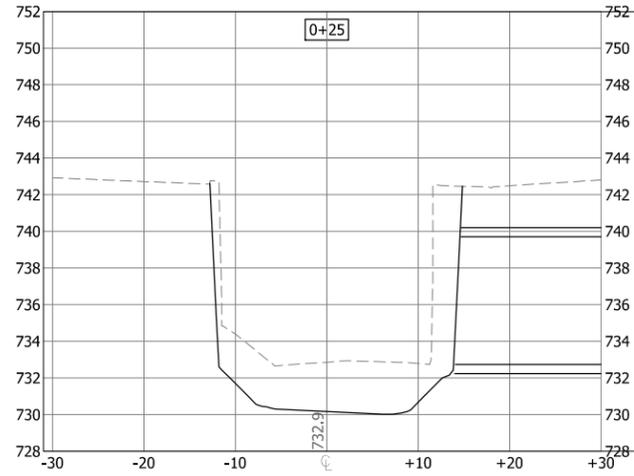
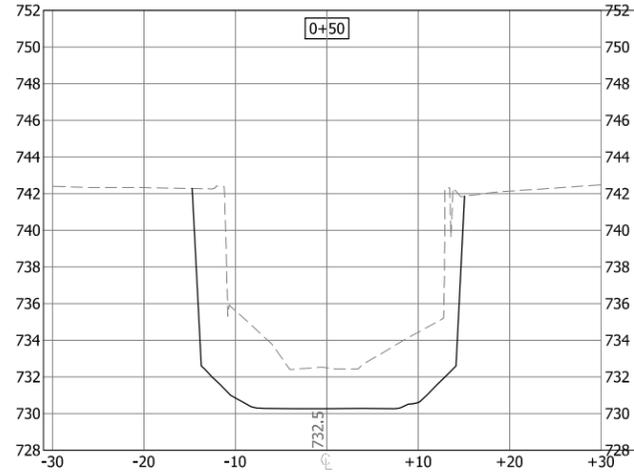
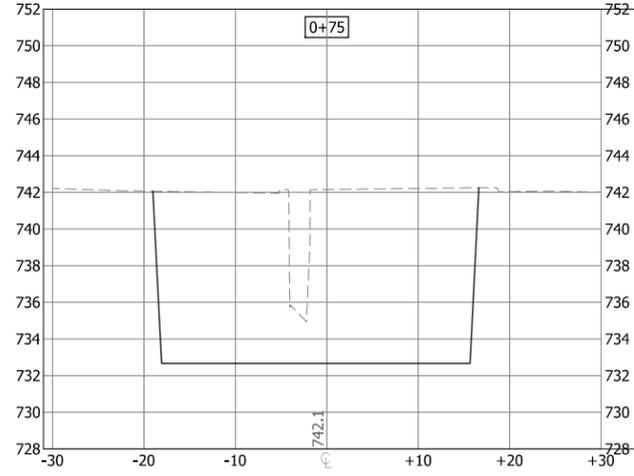
SURVEY JSH
DRAWN AJR
DESIGNED BG
CHECKED RJK
APPROVED JG

PROJ. NO. 193804489

SHEET NUMBER
CH-GD3

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 REVIEW

CHANNEL CROSS SECTIONS
 UNDERWOOD CREEK DAYLIGHTING
 VILLAGE OF ELM GROVE
 WAUKESHA COUNTY, WISCONSIN

DATE OF ISSUANCE
 January 10, 2019

NO. REVISION DATE

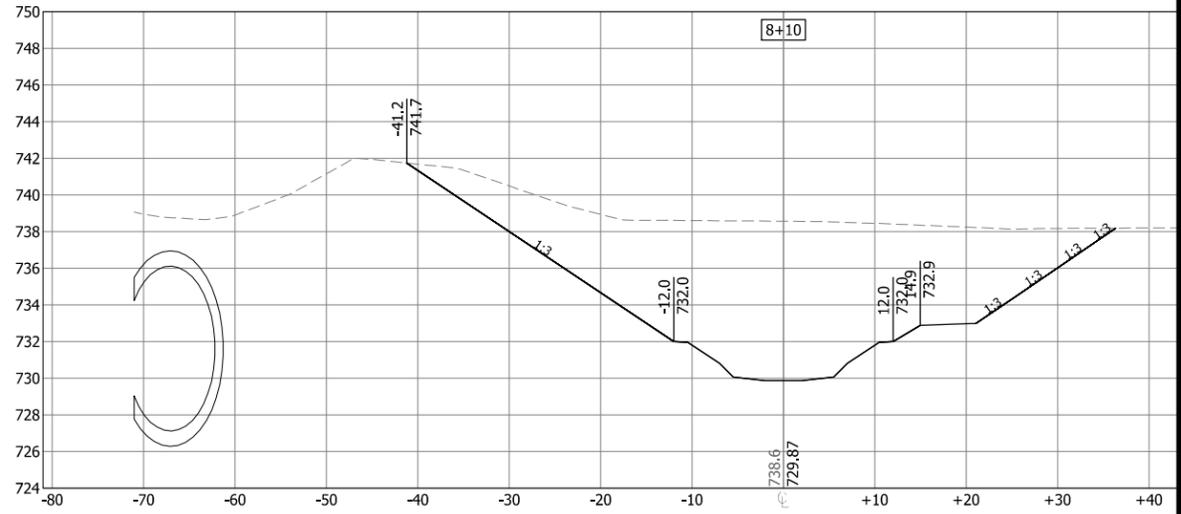
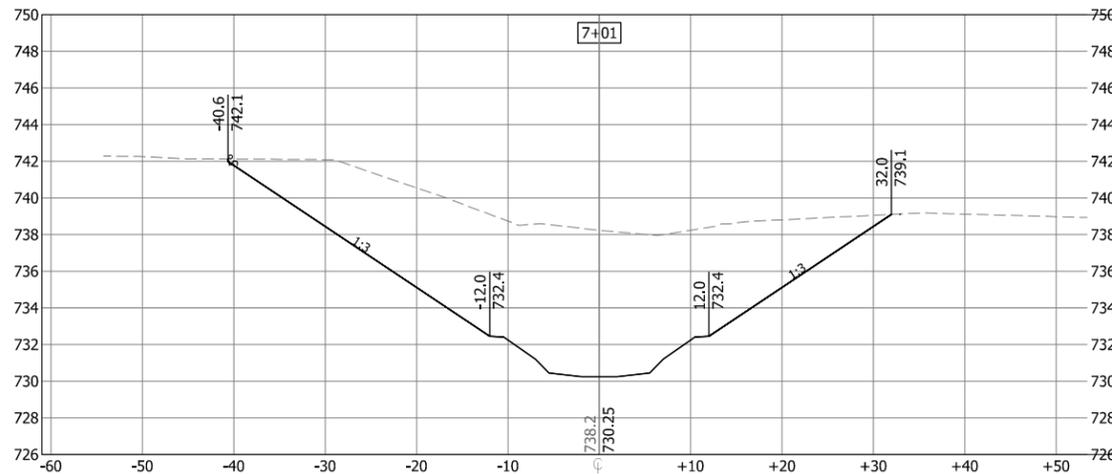
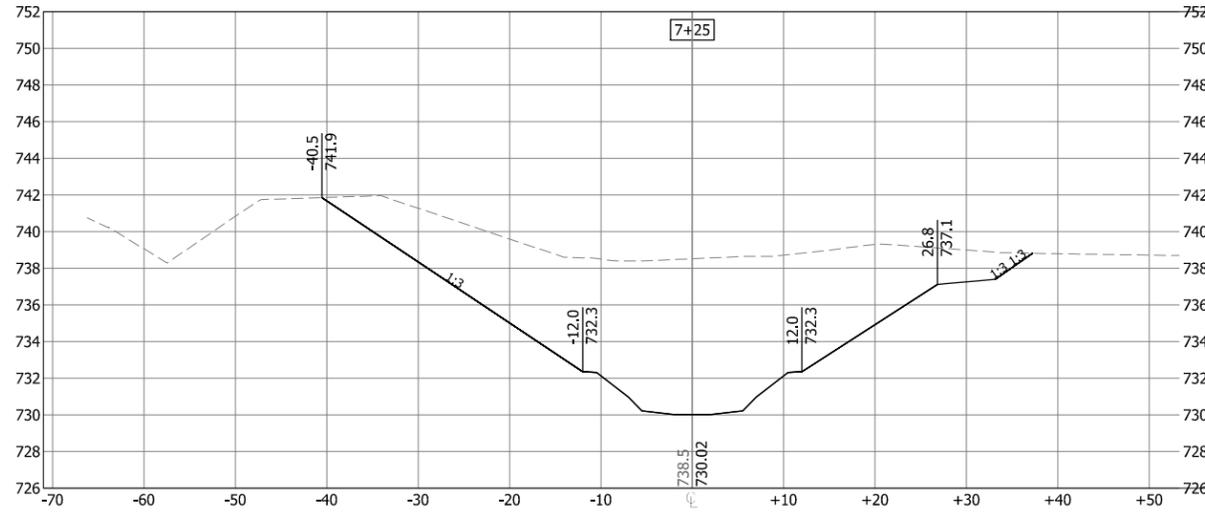
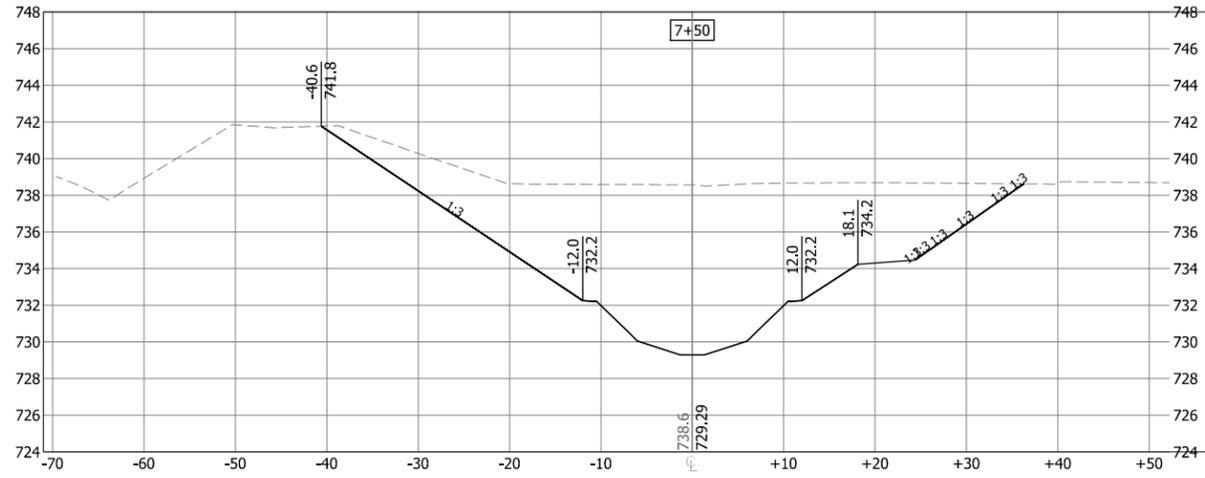
SURVEY JSH
 DRAWN AJR
 DESIGNED BG
 CHECKED RJK
 APPROVED JG

PROJ. NO. 193804489

SHEET NUMBER
 CH-CS1

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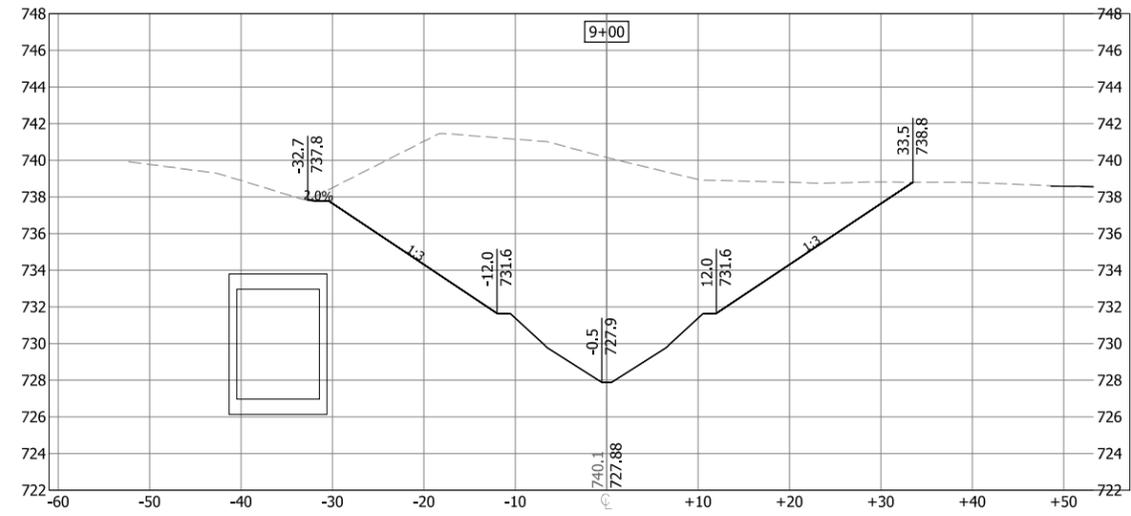
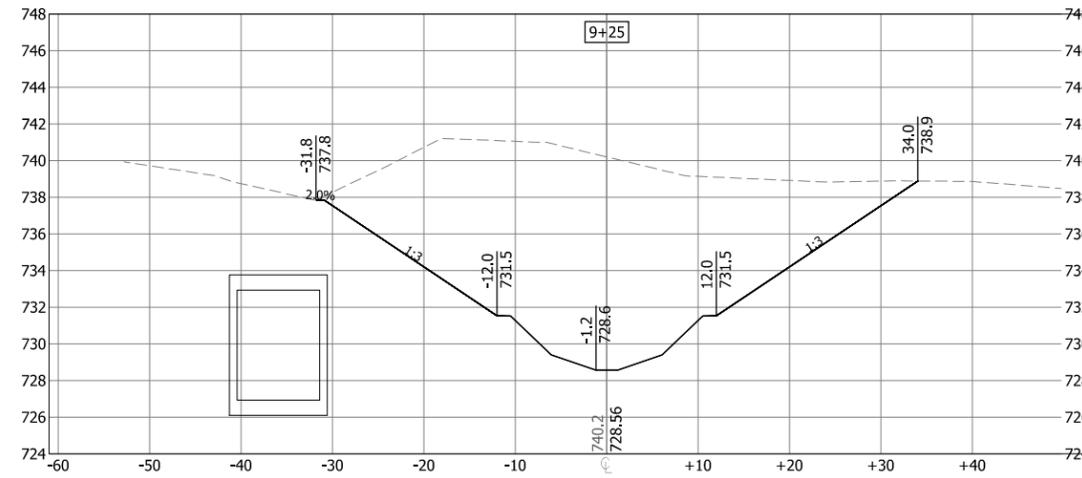
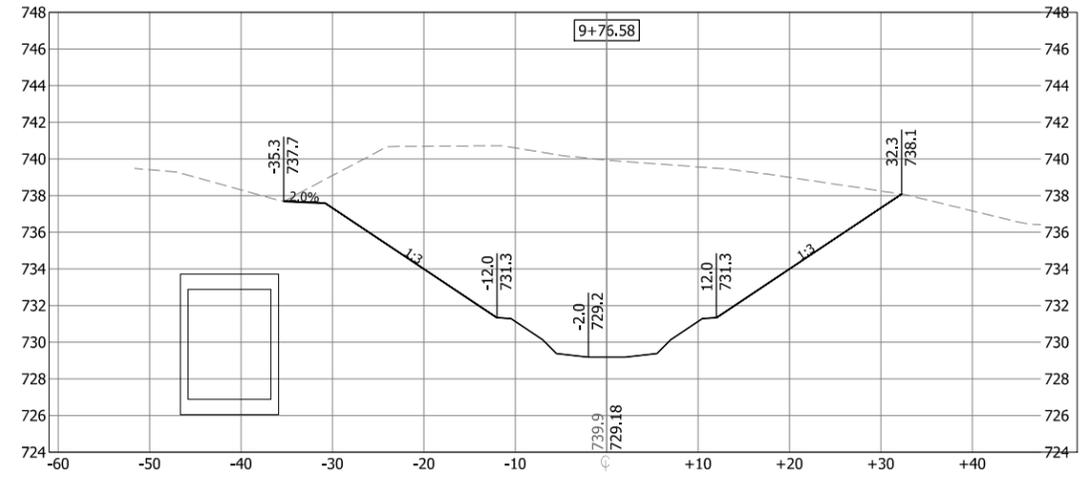
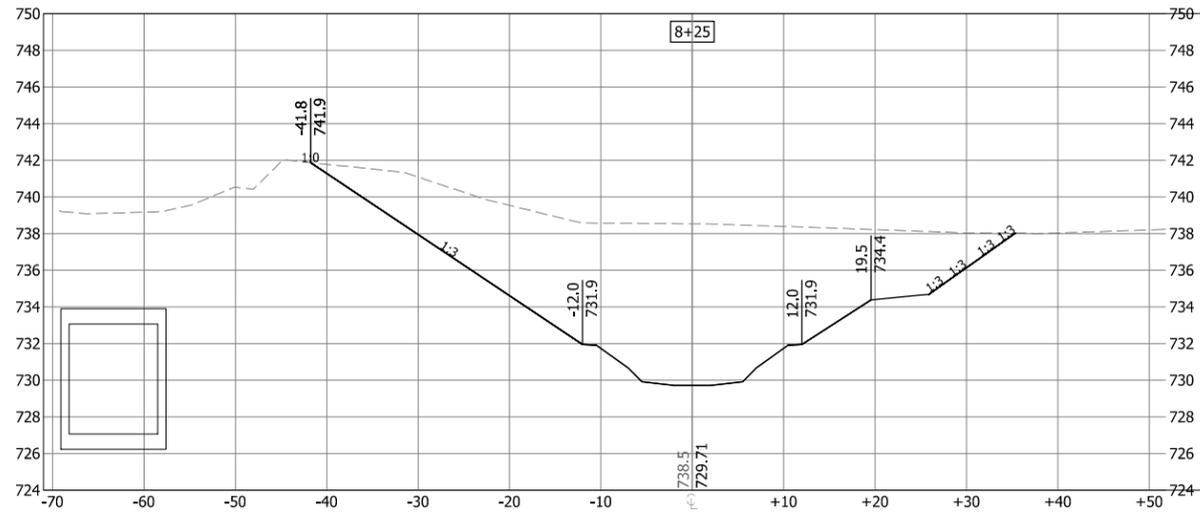
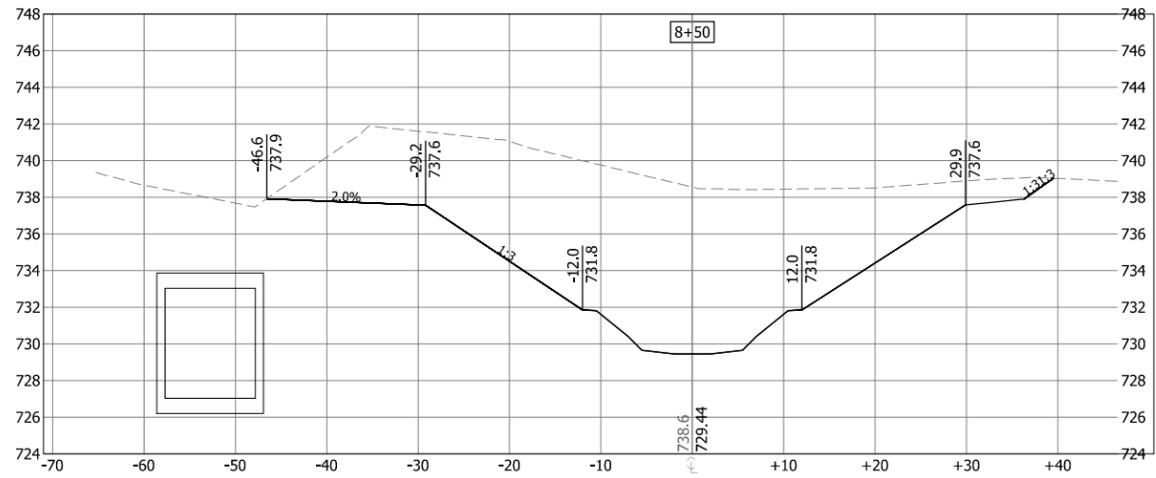
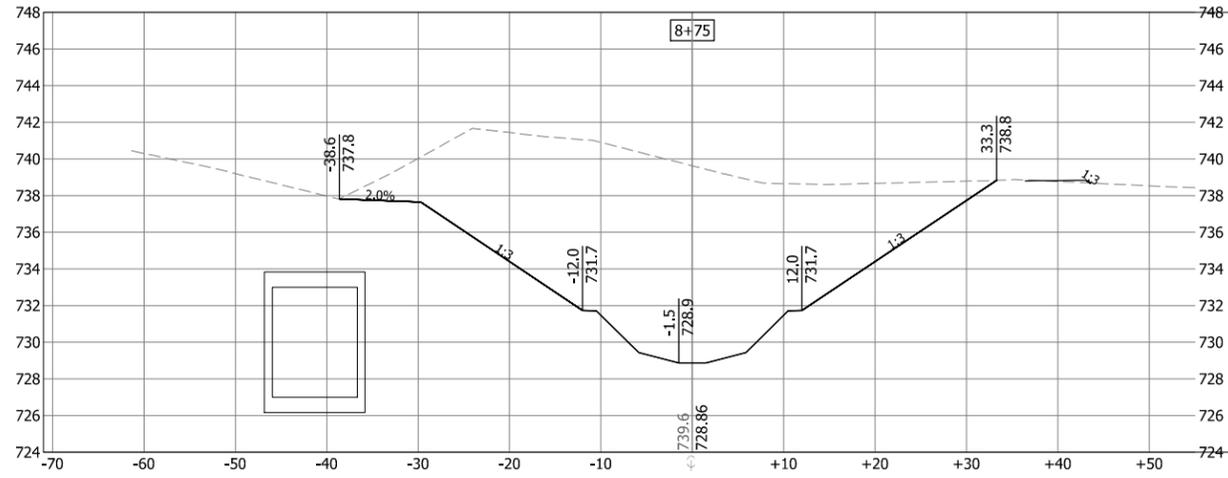
CHANNEL CROSS SECTIONS
 UNDERWOOD CREEK DAYLIGHTING
 VILLAGE OF ELM GROVE
 WAUKESHA COUNTY, WISCONSIN

DATE OF ISSUANCE	January 10, 2019
NO. REVISION	DATE
SURVEY	JSH
DRAWN	AJR
DESIGNED	BG
CHECKED	RJK
APPROVED	JG
PROJ. NO.	193804489

SHEET NUMBER
CH-CS5

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 UNDERWOOD CREEK DAYLIGHTING
 VILLAGE OF ELM GROVE
 WAUKESHA COUNTY, WISCONSIN

DATE OF ISSUANCE
 January 10, 2019

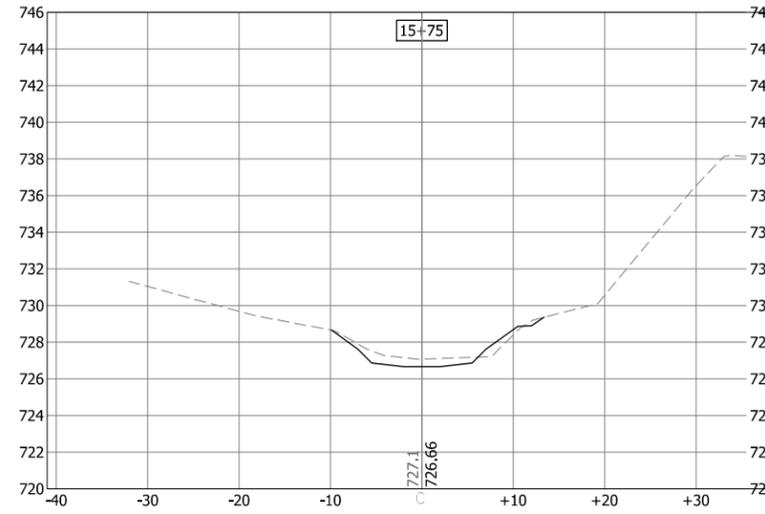
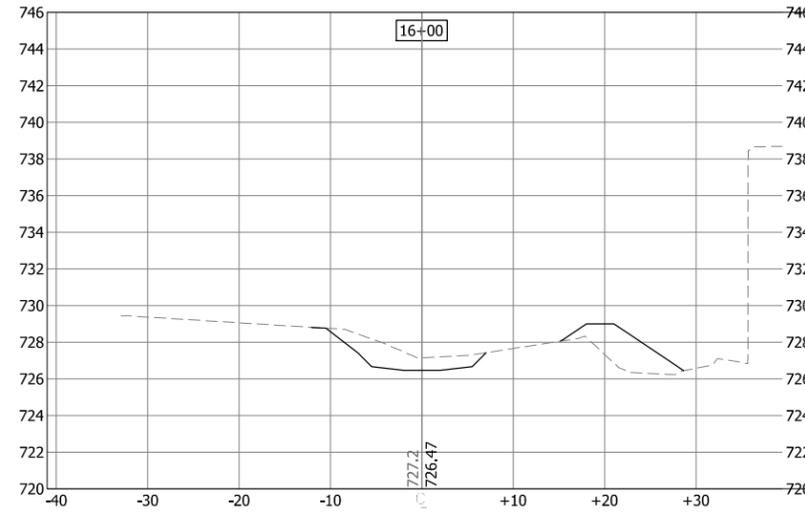
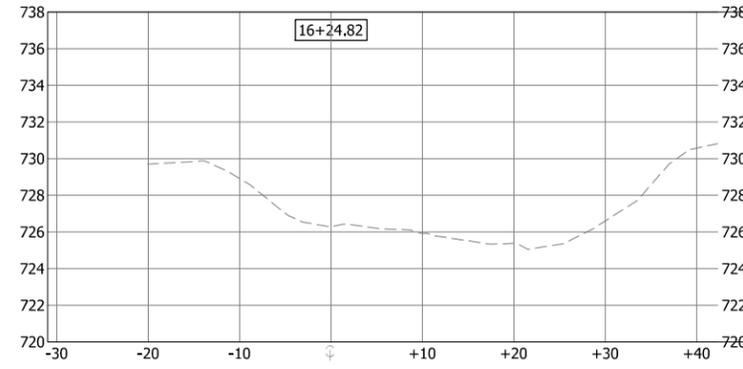
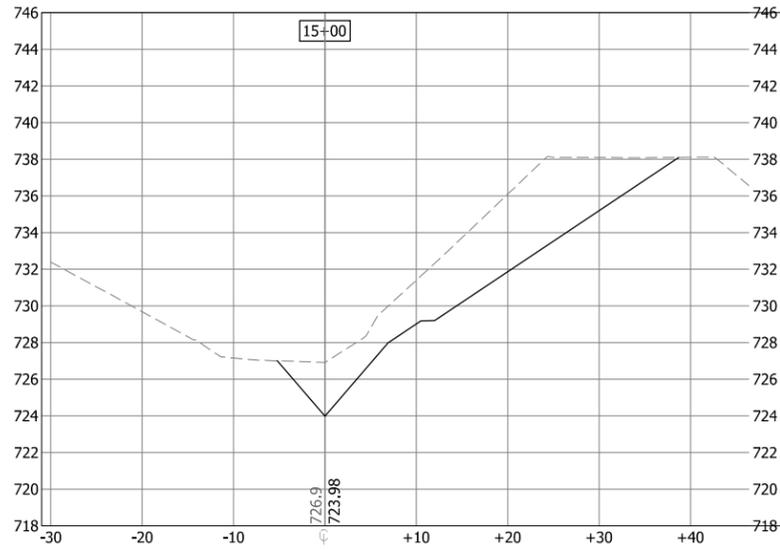
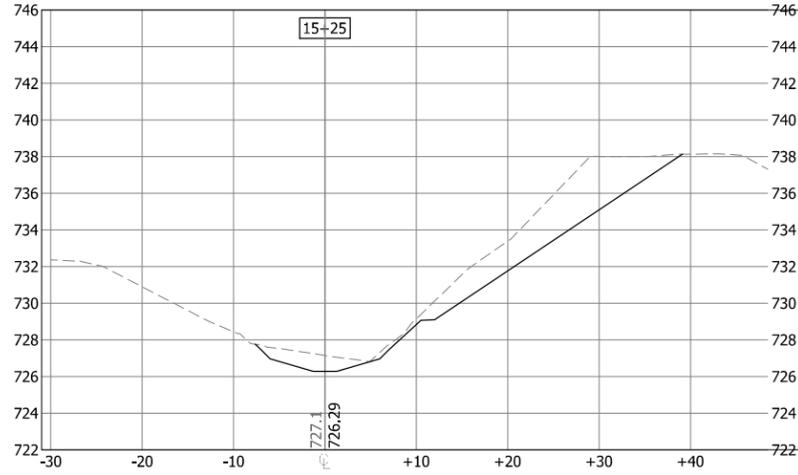
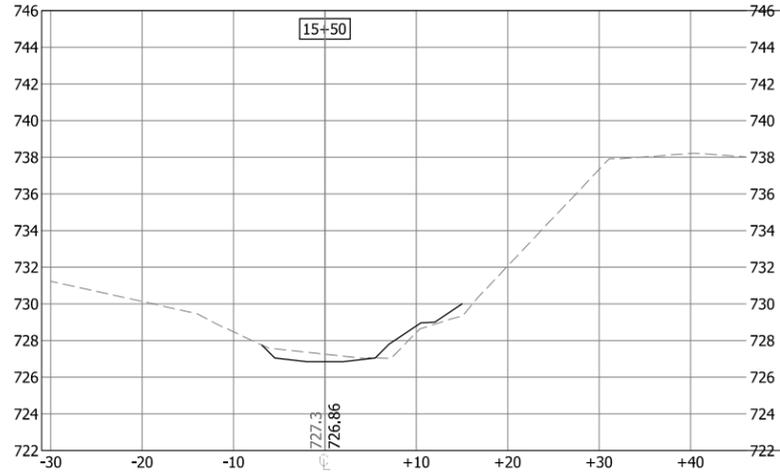
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SURVEY	JSH
DRAWN	AJR
DESIGNED	BG
CHECKED	RJK
APPROVED	JG
PROJ. NO.	193804489

SHEET NUMBER
 CH-CS6

THE CONTRACTOR SHALL VERIFY AND BE RESPONSIBLE FOR ALL DIMENSIONS. DO NOT SCALE THE DRAWING. ANY ERRORS OR OMISSIONS SHALL BE REPORTED TO STANTEC WITHOUT DELAY. STANTEC SHALL NOT BE RESPONSIBLE FOR ANY ERRORS OR OMISSIONS OTHER THAN THOSE AUTHORIZED BY STANTEC'S FORFEITURE.

Plot Date: 01/10/2019 - 6:53pm
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 VILLAGE OF ELM GROVE
 WAUKESHA COUNTY, WISCONSIN

DATE OF ISSUANCE
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NO	REVISION	DATE

SURVEY	JSH
DRAWN	AJR
DESIGNED	BG
CHECKED	RJK
APPROVED	JG
PROJ. NO.	193804489

SHEET NUMBER
CH-CS10

THE CONTRACTOR SHALL VERIFY AND BE RESPONSIBLE FOR ALL DIMENSIONS. DO NOT SCALE THE DRAWING. ANY ERRORS OR OMISSIONS SHALL BE REPORTED TO STANTEC WITHOUT DELAY. REPRODUCTION OR USE FOR ANY PURPOSE OTHER THAN THAT AUTHORIZED BY STANTEC IS FORBIDDEN.

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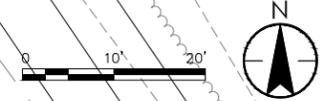


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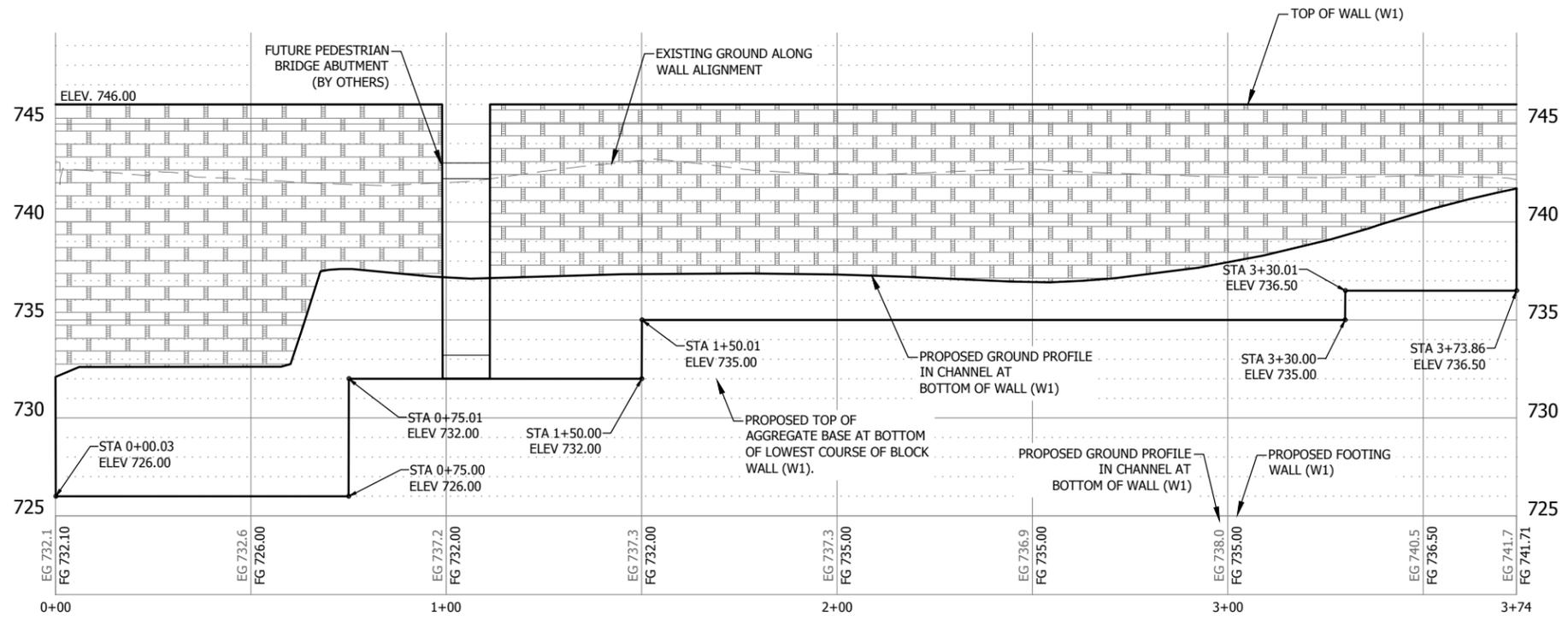
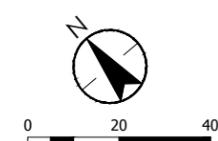
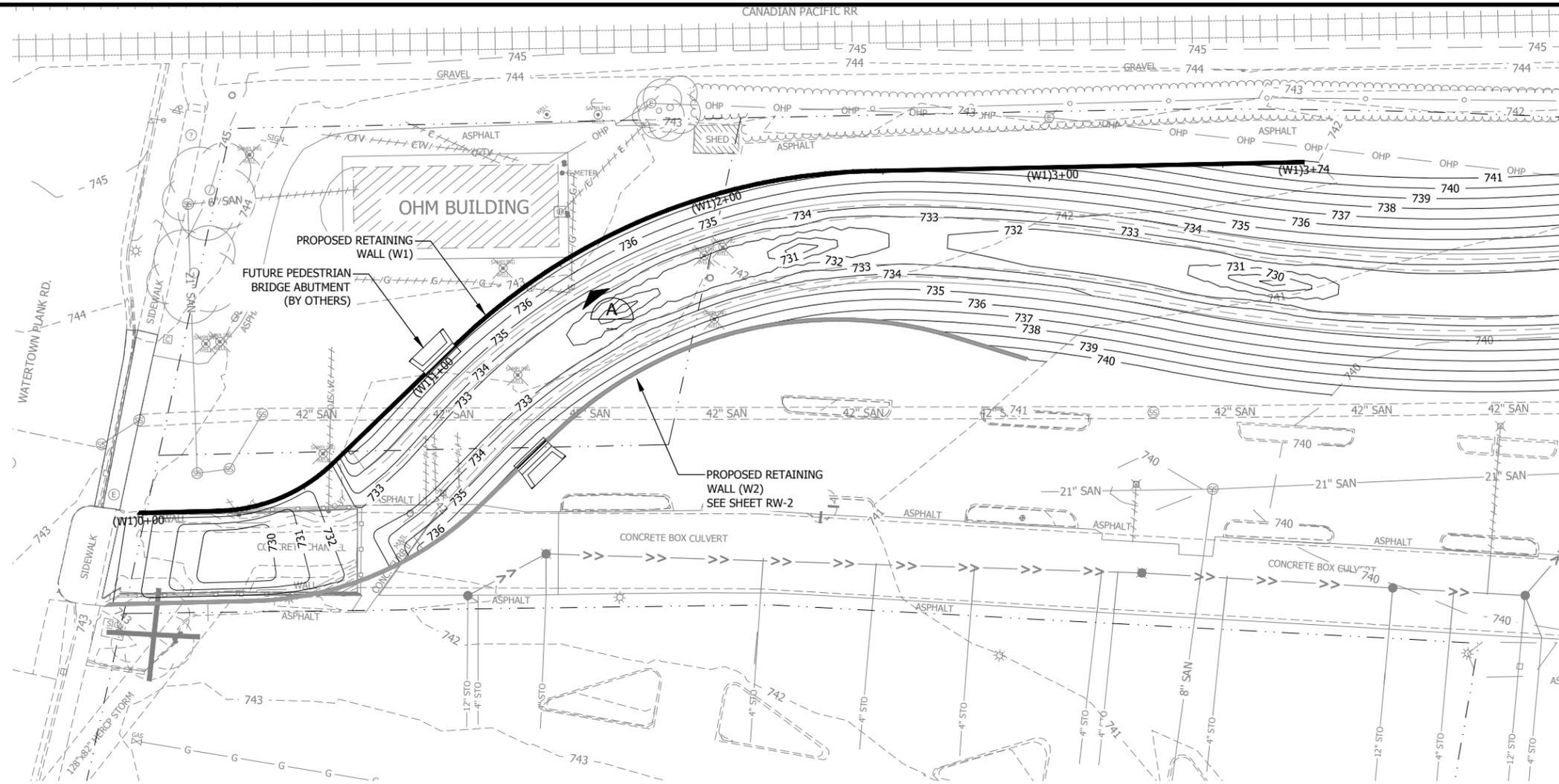
CONCRETE ARCH CULVERT PLAN VIEW
 UNDERWOOD CREEK DAYLIGHTING
 VILLAGE OF ELM GROVE
 WAUKESHA COUNTY, WISCONSIN

DATE OF ISSUANCE	January 10, 2019
NO. REVISION	DATE
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APPROVED	JG
PROJ. NO.	19380489
SHEET NUMBER	CA-1



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Plot Date: 01/10/2019 - 6:54pm
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 User: J. Bender, 193804489_2301, 193804489_2301, 193804489_2301



ELEVATION VIEW
 1" = 40'
 A

- NOTE**
- WHERE RETAINING WALL EXTENDS ABOVE GROUND SURFACE, USE BLOCK TEXTURED ON BOTH SIDES (FREE STANDING BLOCKS).
 - TOP OF WALL SHALL BE BETWEEN 3.5 FEET AND 4.5 FEET ABOVE FINAL GROUND SURFACE.
 - APPROXIMATELY THREE (3) COURSES OF FREE-STANDING BLOCKS AT TOP OF WALL. USE ADDITIONAL FREE-STANDING BLOCKS AS NECESSARY BELOW THESE TOP COURSES.

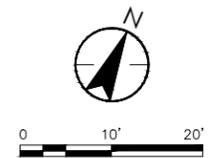
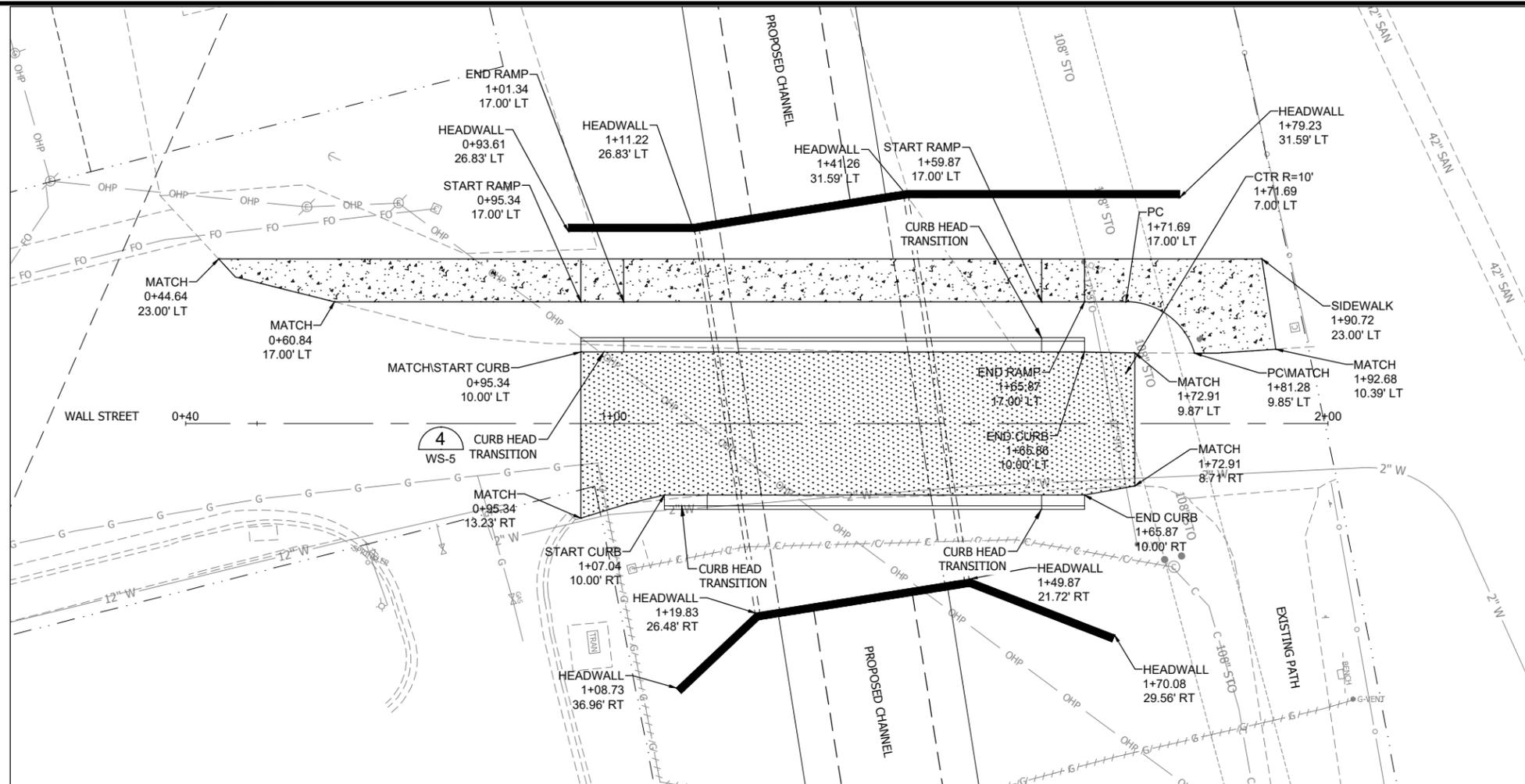
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RETAINING WALL (W1) PROFILE
 UNDERWOOD CREEK DAYLIGHTING
 VILLAGE OF ELM GROVE
 WAUKESHA COUNTY, WISCONSIN

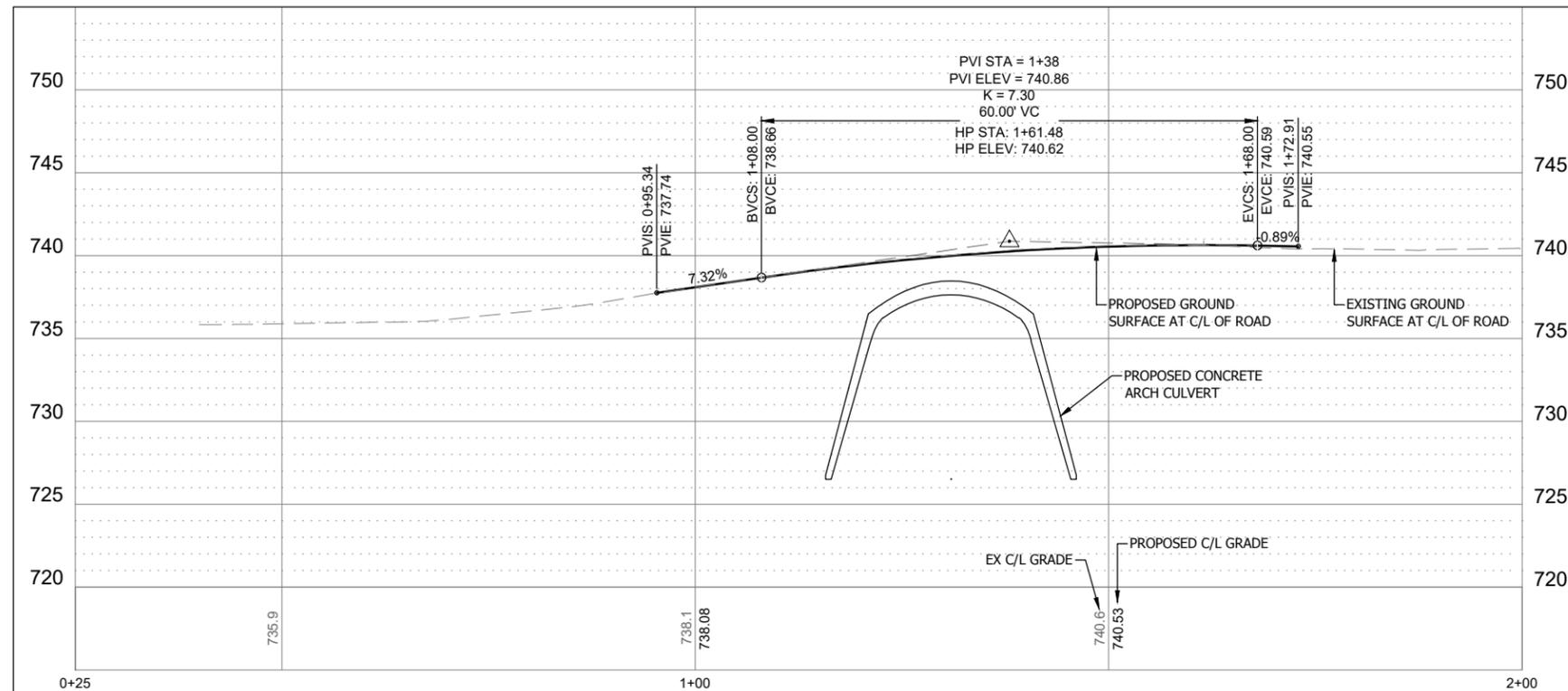
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NO. REVISION	DATE
SURVEY	JSH
DRAWN	AJR
DESIGNED	BG
CHECKED	RJK
APPROVED	JG
PROJ. NO.	193804489
SHEET NUMBER	RW-1

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 User: jborde, 193804489_SNO, 193804489_SNO, 193804489_SPL



PLAN VIEW - WALL STREET
 1" = 10'

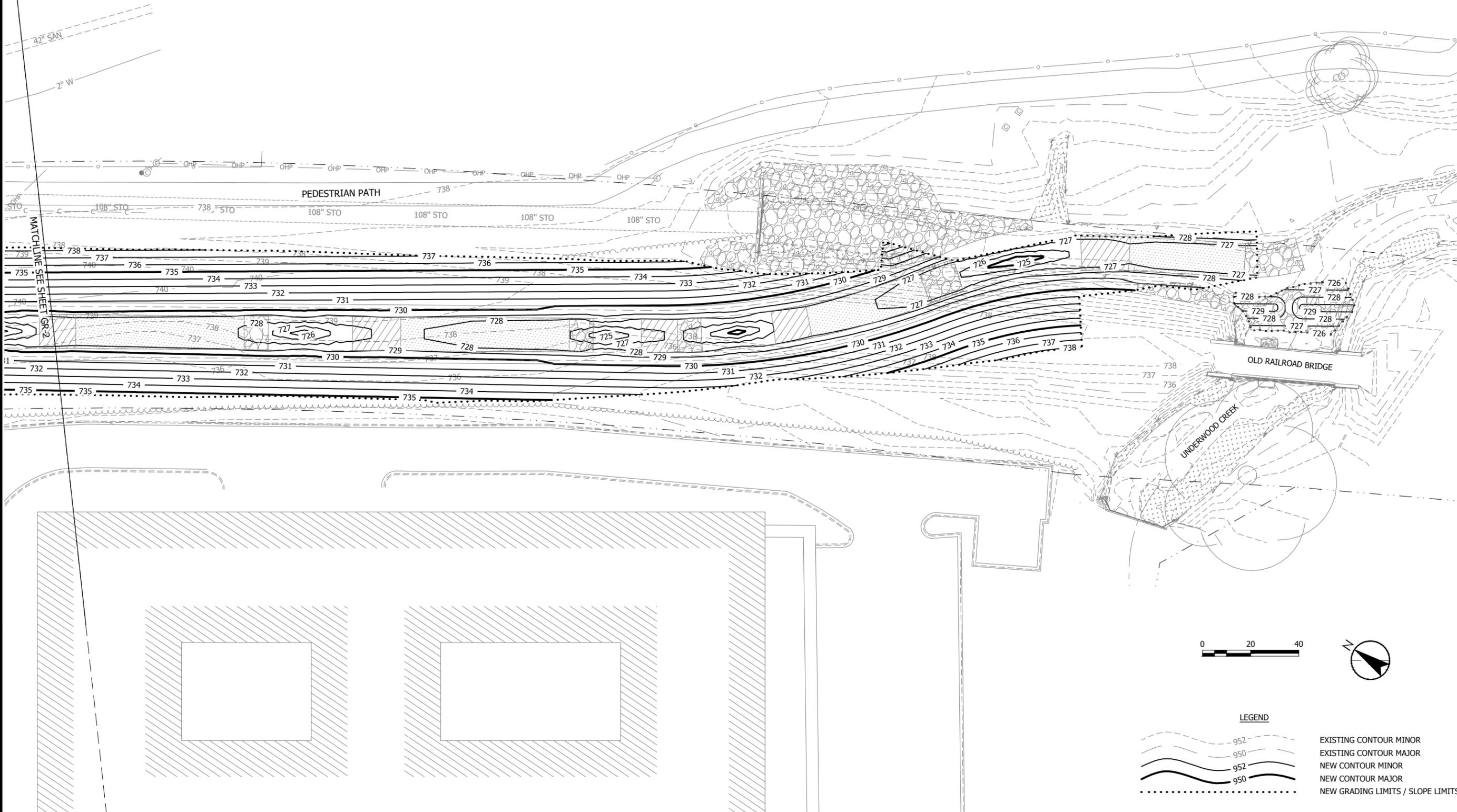


NO.	REVISION	DATE

SURVEY	JSH
DRAWN	AJR
DESIGNED	BG
CHECKED	RJK
APPROVED	JG
PROJ. NO.	193804489

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CANADIAN PACIFIC RAILROAD



Plot Date: 01/10/2019 - 6:57pm
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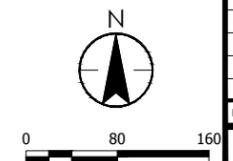
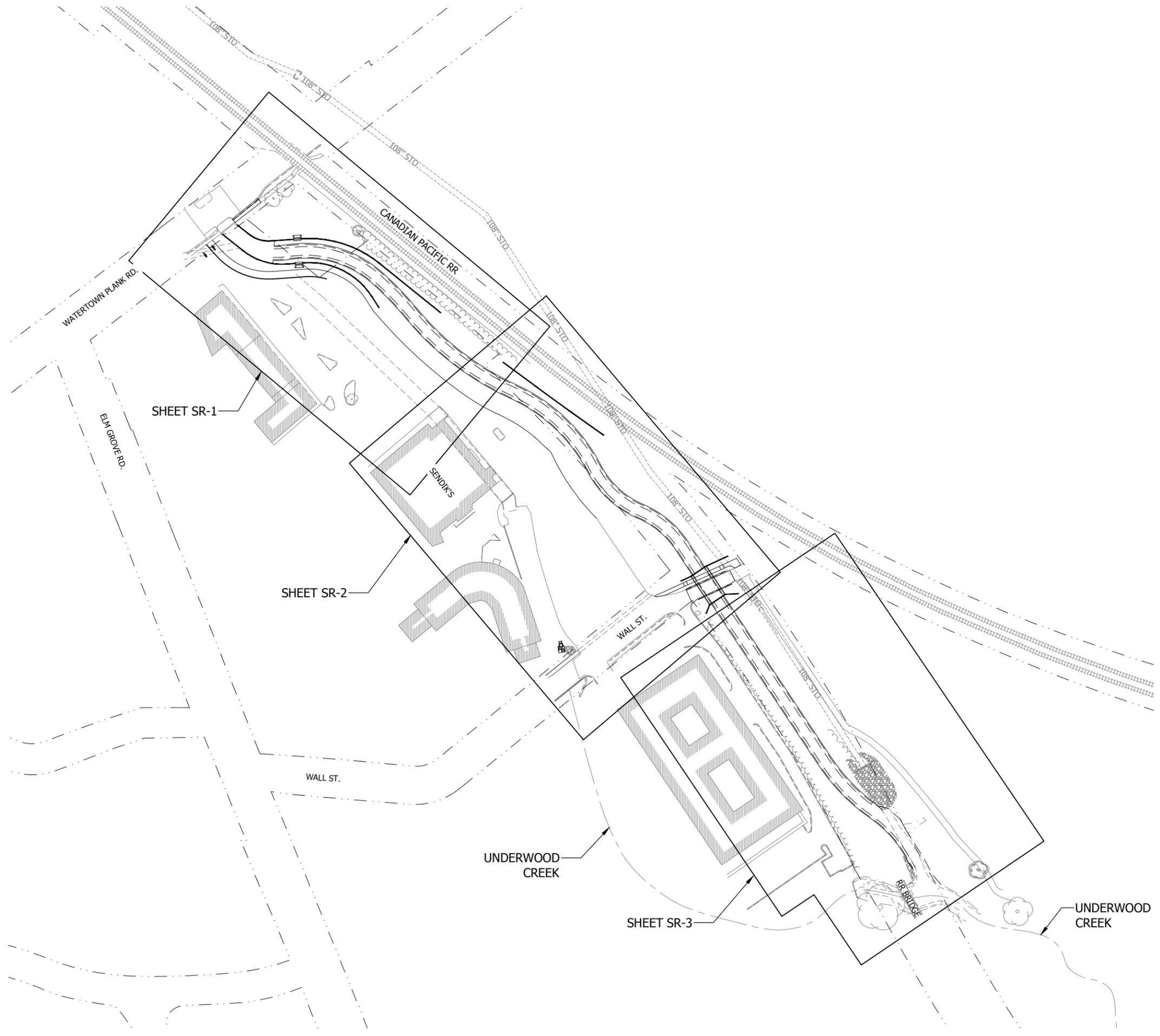
GRADING PLAN

UNDERWOOD CREEK DAYLIGHTING
 VILLAGE OF ELM GROVE
 WAUKESHA COUNTY, WISCONSIN

DATE OF ISSUANCE	
January 10, 2019	
NO	REVISION DATE
SURVEY	JSH
DRAWN	AJR
DESIGNED	BG
CHECKED	RJK
APPROVED	JG
PROJ. NO.	193804489
SHEET NUMBER	
GR-3	

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 User: bender, 193804489_2011, 193804489_2011, 193804489_2011



SURFACE RESTORATION SHEET INDEX
 UNDERWOOD CREEK DAYLIGHTING
 VILLAGE OF ELM GROVE
 WAUKESHA COUNTY, WISCONSIN

DATE OF ISSUANCE
 January 10, 2019

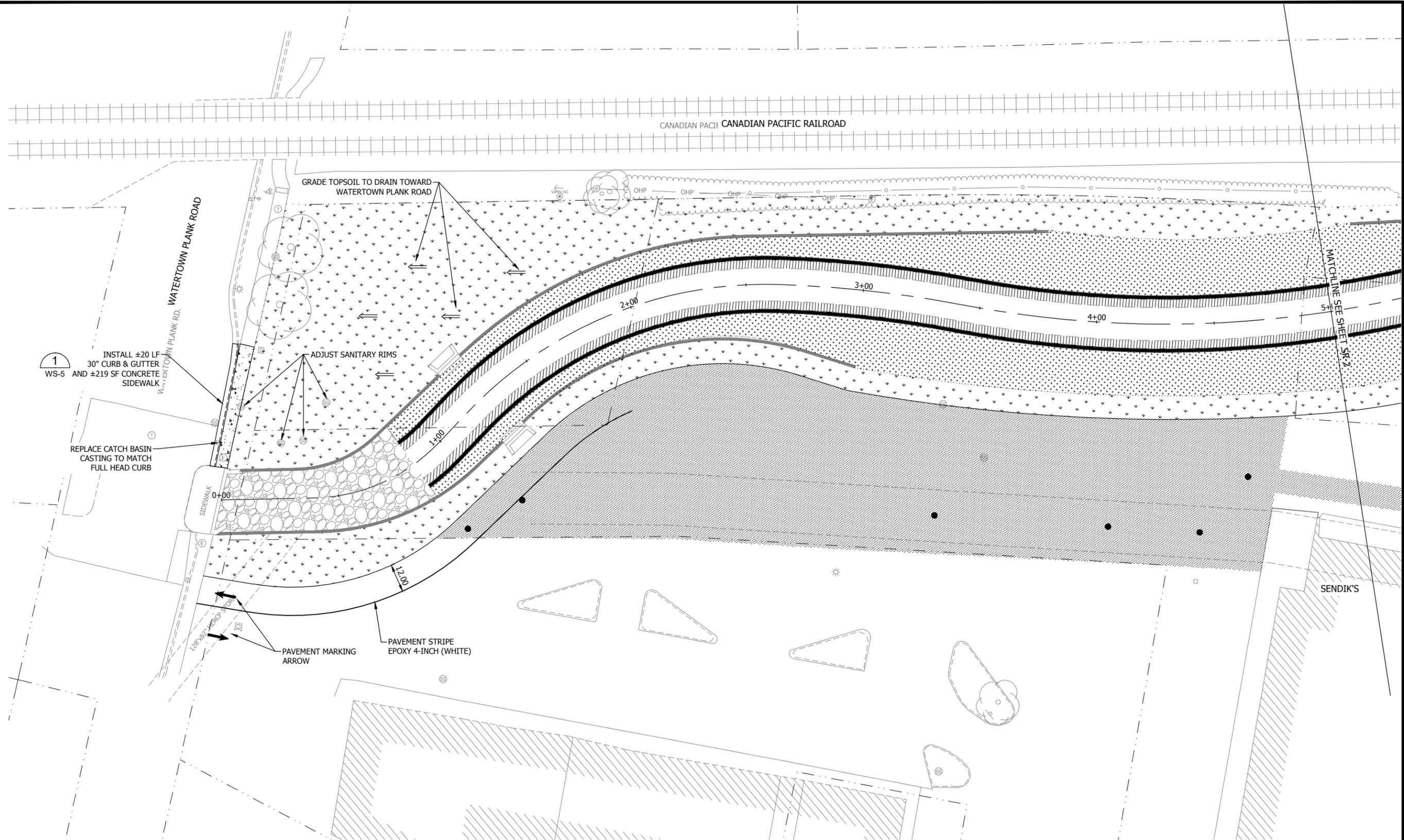
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SURVEY	JSH
DRAWN	AJR
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APPROVED	JG
PROJ. NO.	193804489

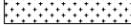
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SR-0

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LEGEND

-  CONCRETE SIDEWALK
-  ASPHALT PAVEMENT
-  ZONE A (SEE SHEETS SR-4, SR-5)
-  ZONE B (SEE SHEETS SR-4, SR-5)
-  ZONE C (SEE SHEETS SR-4, SR-5)
-  ZONE D (SEE SHEETS SR-4, SR-5)

1
WS-5

2
WS-5

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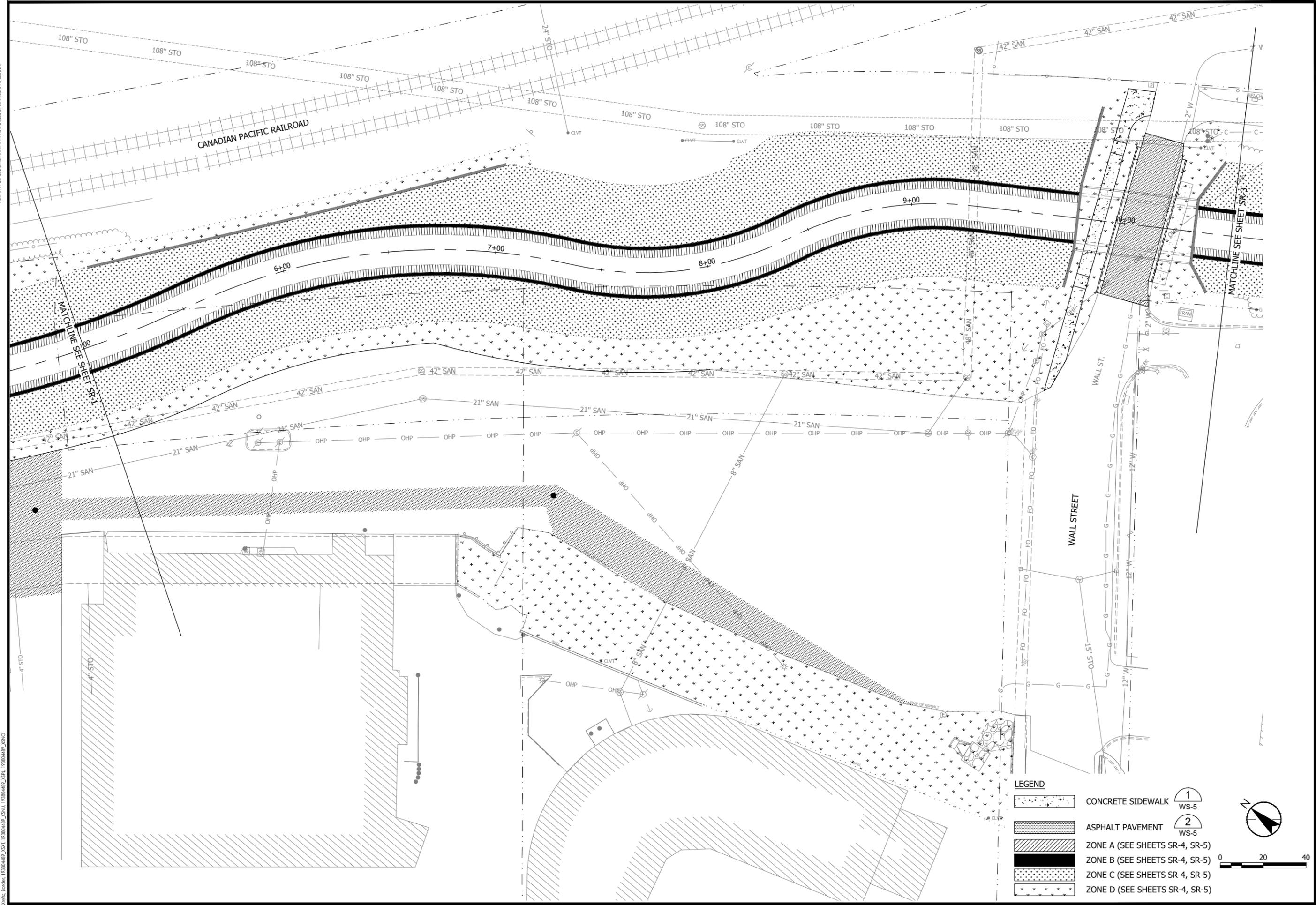
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SURFACE RESTORATION PLAN
 UNDERWOOD CREEK DAYLIGHTING
 VILLAGE OF ELM GROVE
 WAUKESHA COUNTY, WISCONSIN

DATE OF ISSUANCE	January 10, 2019	
NO	REVISION	DATE
SURVEY	JSH	
DRAWN	AJR	
DESIGNED	BG	
CHECKED	RJK	
APPROVED	JG	
PROJ. NO.	193804489	
SHEET NUMBER	SR-1	

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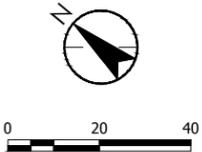
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LEGEND

-  CONCRETE SIDEWALK
-  ASPHALT PAVEMENT
-  ZONE A (SEE SHEETS SR-4, SR-5)
-  ZONE B (SEE SHEETS SR-4, SR-5)
-  ZONE C (SEE SHEETS SR-4, SR-5)
-  ZONE D (SEE SHEETS SR-4, SR-5)

- 1
WS-5
- 2
WS-5



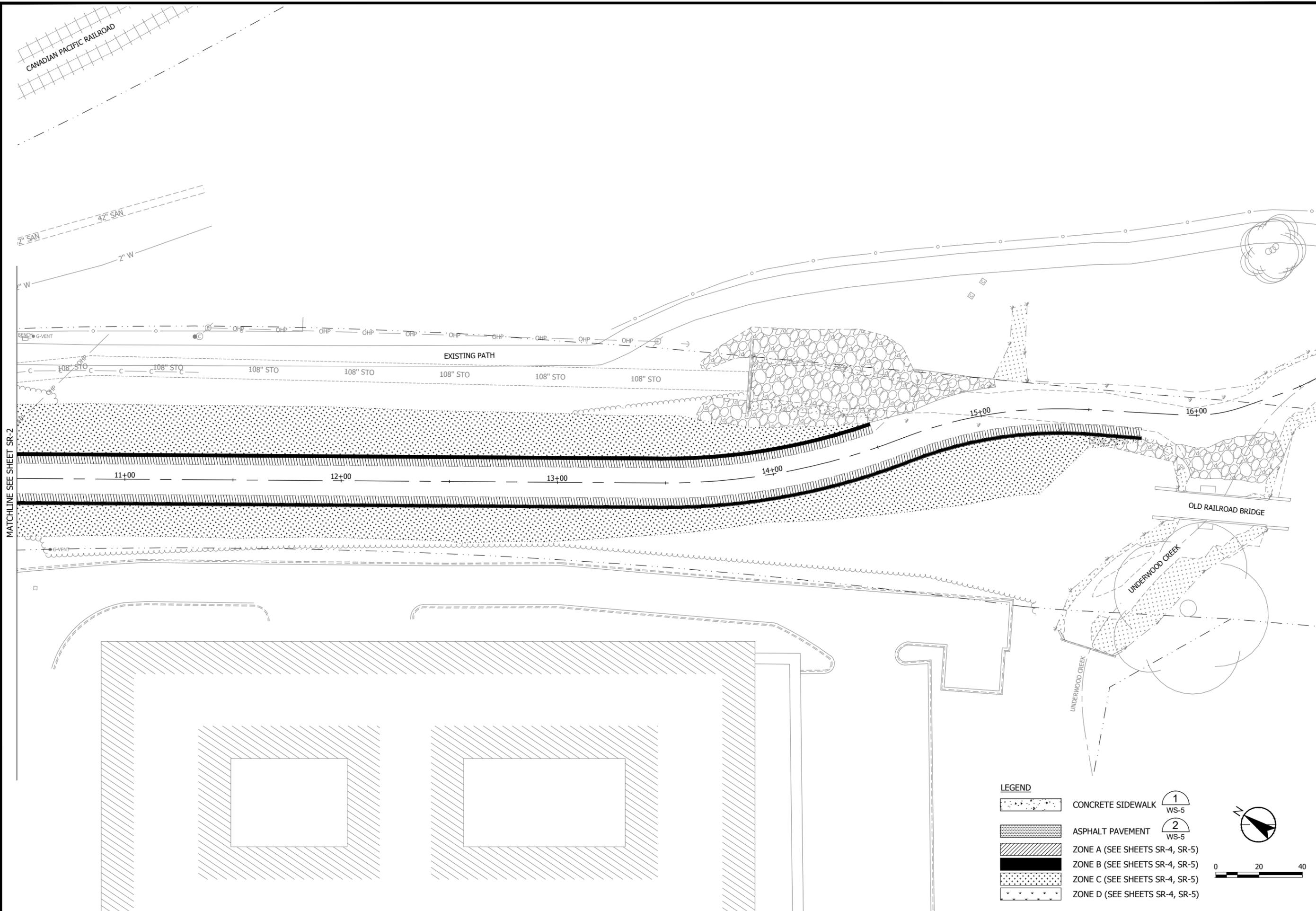
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SURFACE RESTORATION PLAN
 UNDERWOOD CREEK DAYLIGHTING
 VILLAGE OF ELM GROVE
 WAUKESHA COUNTY, WISCONSIN

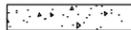
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NO	REVISION	DATE
SURVEY	JSH	
DRAWN	AJR	
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PROJ. NO.	193804489	
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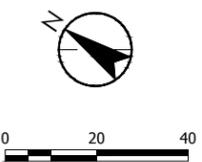
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MATCHLINE SEE SHEET SR-2

- LEGEND**
-  CONCRETE SIDEWALK 1
WS-5
 -  ASPHALT PAVEMENT 2
WS-5
 -  ZONE A (SEE SHEETS SR-4, SR-5)
 -  ZONE B (SEE SHEETS SR-4, SR-5)
 -  ZONE C (SEE SHEETS SR-4, SR-5)
 -  ZONE D (SEE SHEETS SR-4, SR-5)



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SURVEY	JSH
DRAWN	AJR
DESIGNED	BG
CHECKED	RJK
APPROVED	JG
PROJ. NO.	193804489
SHEET NUMBER	
SR-3	

THE CONTRACTOR SHALL VERIFY AND BE RESPONSIBLE FOR ALL DIMENSIONS. DO NOT SCALE THE DRAWING. ANY ERRORS OR OMISSIONS SHALL BE REPORTED TO STANTEC WITHOUT DELAY. STANTEC SHALL NOT BE RESPONSIBLE FOR ANY ERRORS OR OMISSIONS THAT MAY OCCUR FOR ANY PURPOSE OTHER THAN THAT AUTHORIZED BY STANTEC & FORBIDDEN.

TABLE 1 – ZONE A, B, & C - TEMPORARY EROSION CONTROL AND/OR COVER CROP SEED MIXTURE ¹

SCIENTIFIC NAME	COMMON NAME	SEEDING RATE (PLS) ²	PERCENT	SEASON ³
<i>AVENA SATIVA</i>	COMMON OATS	38 LBS/AC 19 LBS/AC AS A COVER CROP	86	LATE SPRING - EARLY FALL (APRIL 15 THRU NOVEMBER 15)
<i>LOLIUM MULTIFORUM</i>	ANNUAL RYE	6 LBS / AC 3 LBS/AC AS A COVER CROP	14	

NOTES

- CONTRACTOR MAY SELECT OTHER SPECIES THAT MUST BE APPROVED BY THE OWNER: SELECT SPECIES SUITABLE FOR SOIL CONDITIONS PER TESTING AS DESCRIBED IN SEED BED/SOIL PREPARATION NOTES.
- PLS - PURE LIVE SEED.
- CONTRACTOR SHALL SUBSTITUTE WINTER WHEAT BETWEEN NOVEMBER 15 AND APRIL 15 AT A RATE OF 40 LBS/AC FOR SEEDING AND 15 LBS/AC AS A COVER CROP.
- ALL COVERED AREA SHALL BE COVERED WITH EROSION MAT.

PLANTING TABLE 1

TABLE 2 – ZONE A & B - NATIVE GRASS SEED MIXTURE ¹

SCIENTIFIC NAME	COMMON NAME	PHYSIOLOGY	SEEDING RATE (PLS) ²
<i>ALISMA SUBCORDATUM</i>	SOUTHERN WATER-PLANTAIN	FORB	VARIES ^{3,4,5}
<i>ANGELICA ATROPURPUREA</i>	ANGELICA	FORB	VARIES ^{3,4,5}
<i>ASCLEPIAS INCARNATA</i>	SWAMP MILKWEED	FORB	VARIES ^{3,4,5}
<i>BIDENS COMOSA COMOVS</i>	SWAMP TICKSEED	FORB	VARIES ^{3,4,5}
<i>BIDENS FRONDOSA</i>	COMMON BEGGER-TICKS	FORB	VARIES ^{3,4,5}
<i>EUPATORIUM PERFOLIATUM</i>	BONESET	FORB	VARIES ^{3,4,5}
<i>EUTROCHUM MACULATUM</i>	JOE-PYE-WEED	FORB	VARIES ^{3,4,5}
<i>HELIANTHUS GIGANTEUS</i>	TALL SUNFLOWER	FORB	VARIES ^{3,4,5}
<i>IRIS VIRGINICA</i>	BLUE FLAG	FORB	VARIES ^{3,4,5}
<i>JUNCUS DUDLEYI</i>	DUDLEY'S RUSH	FORB	VARIES ^{3,4,5}
<i>JUNCUS EFFUSUS</i>	SOFT RUSH	FORB	VARIES ^{3,4,5}
<i>JUNCUS TENUIS</i>	PATH RUSH	FORB	VARIES ^{3,4,5}
<i>JUNCUS TORREYI</i>	TORREY'S RUSH	FORB	VARIES ^{3,4,5}
<i>LOBELIA SIPHILITICA</i>	GREAT BLUE LOBELIA	FORB	VARIES ^{3,4,5}
<i>MENTHA ARVENSIS</i>	WILD MINT	FORB	VARIES ^{3,4,5}
<i>MIMULUS RINGENS</i>	MONKEY-FLOWER	FORB	VARIES ^{3,4,5}
<i>MONARDA FISTULOSA</i>	WILD-BERGAMOT	FORB	VARIES ^{3,4,5}
<i>PHYSOTEGIA VIRGINIANA</i>	OBEDIENT PLANT	FORB	VARIES ^{3,4,5}
<i>PHYCANTHEMUM VIRGINIANUM</i>	VIRGINIA MOUNTAIN MINT	FORB	VARIES ^{3,4,5}
<i>RANUNCULUS HISPIDUS</i>	SWAMP BUTTERCUP	FORB	VARIES ^{3,4,5}
<i>RUBBECKIA HIRTA</i>	BLACK-EYED SUSAN	FORB	VARIES ^{3,4,5}
<i>SCUTELLARIA LATERIFLORA</i>	MAD-DOG SKULLCAP	FORB	VARIES ^{3,4,5}
<i>SOLIDAGO GIGANTEA</i>	LATE GOLDENROD	FORB	VARIES ^{3,4,5}
<i>SOLIDAGO RIDDELLII</i>	RIDDELLI GOLDENROD	FORB	VARIES ^{3,4,5}
<i>SPARGANIUM EURYCARPUM</i>	COMMON BUR-REED	FORB	VARIES ^{3,4,5}
<i>SYMPHYOTRICHUM NOVAE-ANGLIAE</i>	NEW ENGLAND ASTER	FORB	VARIES ^{3,4,5}
<i>TEUCRIUM CANADENSE</i>	WOOD-SAGE	FORB	VARIES ^{3,4,5}
<i>THALICTRUM DASycARPUM</i>	PURPLE MEADOW-RUE	FORB	VARIES ^{3,4,5}
<i>VERBENA HASTATA</i>	BLUE VERVAIN	FORB	VARIES ^{3,4,5}
<i>VERBENA URTICIFOLIA</i>	WHITE VERVAIN	FORB	VARIES ^{3,4,5}
<i>BROMUS CILIATUS</i>	FRINGED BROME	GRASS	VARIES ^{3,4,5}
<i>CALAMAGROSTIS CANADENSIS</i>	BLUE-JOINT GRASS	GRASS	VARIES ^{3,4,5}
<i>CAREX BLANDA</i>	COMMON WOOD SEDGE	SEDE	VARIES ^{3,4,5}
<i>CAREX CRISTATELLA</i>	CRESTED OVAL SEDGE	SEDE	VARIES ^{3,4,5}
<i>CAREX GRANULARIS</i>	PALE SEDGE	SEDE	VARIES ^{3,4,5}
<i>CAREX LACUSTRIS</i>	COMMON LAKE SEDGE	SEDE	VARIES ^{3,4,5}
<i>CAREX LUPULINA</i>	COMMON HOP SEDGE	SEDE	VARIES ^{3,4,5}
<i>CAREX STRICTA</i>	COMMON TUSSOCK SEDGE	SEDE	VARIES ^{3,4,5}
<i>CAREX VULPINOIDEA</i>	BROWN FOX SEDGE	SEDE	VARIES ^{3,4,5}
<i>ELYMUS CANADENSIS</i>	CANADA WILD RYE	GRASS	VARIES ^{3,4,5}
<i>ELYMUS VIRGINICUS</i>	VIRGINIA WILD RYE	GRASS	VARIES ^{3,4,5}
<i>GLYCERIA STRIATA</i>	FOWL MANNA GRASS	GRASS	VARIES ^{3,4,5}
<i>PANICUM VIRGATUM</i>	SWITCH GRASS	GRASS	VARIES ^{3,4,5}
<i>SCHOENOPELCTUS ACUTUS</i>	HARDSTEM BULRUSH	SEDE	VARIES ^{3,4,5}
<i>SCIRPUS ATROVIRENS</i>	DARK GREEN RUSH	SEDE	VARIES ^{3,4,5}
<i>SCIRPUS CYPERINUS</i>	WOOL-GRASS	SEDE	VARIES ^{3,4,5}
<i>SORGHASTRUM NUTANS</i>	INDIAN GRASS	GRASS	VARIES ^{3,4,5}
<i>SPARTINA PECTINATA</i>	CORD GRASS	GRASS	VARIES ^{3,4,5}

NOTES

- CONTRACTOR MAY SELECT OTHER SPECIES THAT MUST BE APPROVED BY THE OWNER: SELECT SPECIES SUITABLE FOR SOIL CONDITIONS PER TESTING AS DESCRIBED IN SEED BED/SOIL PREPARATION NOTES.
- PLS - PURE LIVE SEED.
- SEED MIXES SHALL INCLUDE 35% WILD RYE SPECIES. MAINTAIN SPECIES DIVERSITY BY USING NO MORE THAN 20% OF ANY SINGLE WILD RYE SPECIES.
- SEED MIX SHALL INCLUDE 65% OF AT LEAST 9 "OTHER" SPECIES (3 FORBS, 3 GRASSES, AND 3 SEDGE SPECIES). MAINTAIN SPECIES DIVERSITY BY USING NO MORE THAN 10% OF ANY SINGLE SPECIES IN THE 65% "OTHER" COMPONENT OF THE SEED MIX.
- APPLY SEED MIX AT A RATE OF 10 LB/AC.

PLANTING TABLE 2

TABLE 3 – ZONE C - NATIVE GRASS SEED MIXTURE ¹

SCIENTIFIC NAME	COMMON NAME	PHYSIOLOGY	SEEDING RATE (PLS) ²
<i>ASCLEPIAS INCARNATA</i>	SWAMP MILKWEED	FORB	VARIES ^{3,4,5}
<i>EUPATORIUM PERFOLIATUM</i>	BONESET	FORB	VARIES ^{3,4,5}
<i>EUTROCHUM MACULATUM</i>	JOE-PYE-WEED	FORB	VARIES ^{3,4,5}
<i>IRIS VIRGINICA</i>	BLUE FLAG	FORB	VARIES ^{3,4,5}
<i>MONARDA FISTULOSA</i>	WILD-BERGAMOT	FORB	VARIES ^{3,4,5}
<i>RUBBECKIA HIRTA</i>	BLACK-EYED SUSAN	FORB	VARIES ^{3,4,5}
<i>SOLIDAGO GIGANTEA</i>	LATE GOLDENROD	FORB	VARIES ^{3,4,5}
<i>SOLIDAGO RIDDELLII</i>	RIDDELLI GOLDENROD	FORB	VARIES ^{3,4,5}
<i>THALICTRUM DASycARPUM</i>	PURPLE MEADOW-RUE	FORB	VARIES ^{3,4,5}
<i>CALAMAGROSTIS CANADENSIS</i>	BLUE-JOINT GRASS	GRASS	VARIES ^{3,4,5}
<i>ELYMUS CANADENSIS</i>	CANADA WILD RYE	GRASS	VARIES ^{3,4,5}
<i>ELYMUS VIRGINICUS</i>	VIRGINIA WILD RYE	GRASS	VARIES ^{3,4,5}
<i>PANICUM VIRGATUM</i>	SWITCH GRASS	GRASS	VARIES ^{3,4,5}

NOTES

- CONTRACTOR MAY SELECT OTHER SPECIES THAT MUST BE APPROVED BY THE OWNER: SELECT SPECIES SUITABLE FOR SOIL CONDITIONS PER TESTING AS DESCRIBED IN SEED BED/SOIL PREPARATION NOTES.
- PLS - PURE LIVE SEED.
- SEED MIXES SHALL INCLUDE 35% WILD RYE SPECIES. MAINTAIN SPECIES DIVERSITY BY USING NO MORE THAN 20% OF ANY SINGLE WILD RYE SPECIES.
- SEED MIX SHALL INCLUDE 65% OF AT LEAST 6 "OTHER" SPECIES (BLACK-EYED SUSAN, 2 ADDITIONAL FORBS, AND 3 GRASSES). MAINTAIN SPECIES DIVERSITY BY USING NO MORE THAN 15% OF ANY SINGLE SPECIES IN THE 65% "OTHER" COMPONENT OF THE SEED MIX.
- APPLY SEED MIX AT A RATE OF 10 LB/AC.

PLANTING TABLE 3

TABLE 4. ZONE D – TURF GRASS ¹

SCIENTIFIC NAME	COMMON NAME	SEEDING RATE (PLS) ²	PERCENT
<i>POA PRATENSIS L.</i>	KENTUCKY BLUEGRASS	4 LBS/1,000 SQ. FT	80
<i>LOLIUM PERENNE L.</i>	ELITE PERENNIAL RYE	1 LBS/1,000 SQ. FT	20

NOTES

- CONTRACTOR MAY SELECT OTHER SPECIES THAT MUST BE APPROVED BY THE OWNER: SELECT SPECIES SUITABLE FOR SOIL CONDITIONS PER TESTING AS DESCRIBED IN SEED BED/SOIL PREPARATION NOTES.
- PLS - PURE LIVE SEED.

PLANTING TABLE 4

TABLE 5 – ZONE A - SPECIES FOR DORMANT WOODY CUTTINGS ^{1,2}

SCIENTIFIC NAME	COMMON NAME	SIZE (INCHES)	SPACING ³
<i>SALIX COTTETII</i>	BANKERS WILLOW	LENGTH 24-36, DIA. 3/4" – 1 1/2"	STAGGERED WITH 1 STAKE PER 3 LINEAR FEET OF STREAM BANK IN 3 ROWS SPACED 1 FOOT APART. THE FIRST ROW IS ALONG THE TOP OF BANK (BANKFULL) AND THE NEXT 2 ARE BELOW BANKFULL BETWEEN THE TOP OF BANK AND THE INNER BERM INCLUDING WITHIN THE TOE WOOD.
<i>SALIX EXIGUA</i>	SANDBAR WILLOW	LENGTH 24-36, DIA. 3/4" – 1 1/2"	
<i>SAMBUCUS CANADENSIS</i>	ELDERBERRY	LENGTH 24-36, DIA. 3/4" – 1 1/2"	STAGGERED WITH 1 STAKE PER 3 LINEAR FEET OF STREAM BANK IN 3 ROWS SPACED 1 FOOT APART. THE FIRST ROW IS ALONG THE TOP OF BANK (BANKFULL) AND THE NEXT 2 ARE BELOW BANKFULL BETWEEN THE TOP OF BANK AND THE INNER BERM INCLUDING WITHIN THE TOE WOOD.
<i>VIBURNUM OPOLUS (TRILOBUM)</i>	HIGH BUSH CRANBERRY	LENGTH 24-36, DIA. 3/4" – 1 1/2"	
<i>CORNUS STOLONIFERA</i>	RED-OSIER DOGWOOD	LENGTH 24-36, DIA. 3/4" – 1 1/2"	STAGGERED WITH 1 STAKE PER 3 LINEAR FEET OF STREAM BANK IN 3 ROWS SPACED 1 FOOT APART. THE FIRST ROW IS ALONG THE TOP OF BANK (BANKFULL) AND THE NEXT 2 ARE BELOW BANKFULL BETWEEN THE TOP OF BANK AND THE INNER BERM INCLUDING WITHIN THE TOE WOOD.
<i>CORNUS AMOMUM</i>	SILKY DOGWOOD	LENGTH 24-36, DIA. 3/4" – 1 1/2"	

NOTES

- CONTRACTOR MAY SELECT OTHER SPECIES THAT MUST BE APPROVED BY THE OWNER: SELECT SPECIES SUITABLE FOR SOIL CONDITIONS PER TESTING AS DESCRIBED IN SEED BED/SOIL PREPARATION NOTES.
- MAINTAIN SPECIES DIVERSITY BY USING AT LEAST FOUR (4) SPECIES WITH NO MORE THAN 25% OF ANY ONE (1) SPECIES.
- THE QUANTITY OF LIVE STAKES BELOW THE TOP OF BANK (BANKFULL) MAY BE REDUCED WITHIN THE TOE WOOD APPLICATION BASED ON THE DENSITY OF CONTAINERIZED PLANTINGS.

PLANTING TABLE 5

TABLE 7 – ZONE B & C – B&B TREE PLANTING SCHEDULE ^{1,2}

SCIENTIFIC NAME	COMMON NAME	SIZE	SPACING ³
<i>ABIES BALSAMEA</i>	BALSAM FIR	5' – 8' HEIGHT	TREES ARE SPACED EVERY 75'-100' AT LOCATIONS STAKED IN THE FIELD. VARYING FLOODPLAIN AND SLOPE ELEVATIONS
<i>ACER SACCHARINUM</i>	SILVER MAPLE	5' – 8' HEIGHT	
<i>CARYA OVALIS SARG.</i>	RED HICKORY	5' – 8' HEIGHT	
<i>JUGLANS NIGRA</i>	BLACK WALNUT	5' – 8' HEIGHT	
<i>PINUS STROBUS L.</i>	EASTERN WHITE PINE	5' – 8' HEIGHT	
<i>PICEA GLAUCA (MOENCH) VOSS</i>	WHITE SPRUCE	5' – 8' HEIGHT	
<i>PLANTUS OCCIDENTALIS L.</i>	AMERICAN SYCAMORE	5' – 8' HEIGHT	
<i>POPULUS BALSAMIFERA L.</i>	BALSAM POPLAR	5' – 8' HEIGHT	
<i>QUERCUS ALBA</i>	WHITE OAK	5' – 8' HEIGHT	
<i>QUERCUS RUBRA</i>	NORTHERN RED OAK	5' – 8' HEIGHT	
<i>TILIA AMERICANA</i>	AMERICAN BASSWOOD	5' – 8' HEIGHT	
<i>ULMUS AMERICANA</i>	AMERICAN ELM	5' – 8' HEIGHT	

NOTES

- CONTRACTOR MAY SELECT OTHER SPECIES THAT MUST BE APPROVED BY THE OWNER: SELECT SPECIES SUITABLE FOR SOIL CONDITIONS PER TESTING AS DESCRIBED IN SEED BED/SOIL PREPARATION NOTES.
- MAINTAIN SPECIES DIVERSITY BY USING AT LEAST 8 SPECIES (MINIMUM 2 CONIFER) WITH NO MORE THAN 15% OF ANY ONE SPECIES.
- TREES OF THE SAME SPECIES TO BE PLANTED IN GROUPS OF 3 TO 4.

PLANTING TABLE 6

TABLE 6 – ZONE B & C - SHRUB ^{1,2}

SCIENTIFIC NAME	COMMON NAME	SIZE ³	SPACING ^{4,5}
<i>CEPHALANTHUS OCCIDENTALIS</i>	COMMON BUTTONBUSH	1 gal, 8" – 24" tall	SPACED 3 FEET APART AND STAGGERED IF INSTALLED IN ROWS. THE FIRST ROW IS ALONG THE TOP OF BANK (BANKFULL) AND THE SECOND ROW IS BACK ON THE FLOODPLAIN. CLUSTERS SHALL BE INSTALLED RAND ONLY AT VARYING FLOODPLAIN AND SLOPE ELEVATIONS 50 FEET APART.
<i>CORNUS AMOMUM</i>	SILKY DOGWOOD	1 gal, 8" – 24" tall	
<i>CORNUS FOEMINA</i>	GRAY DOGWOOD	1 gal, 8" – 24" tall	
<i>CORNUS SERICEA</i>	RED-OSIER DOGWOOD	1 gal, 8" – 24" tall	
<i>SAMBUCUS CANADENSIS</i>	ELDERBERRY	1 gal, 8" – 24" tall	
<i>VIBURNUM LENTAGO</i>	NANNYBERRY	1 gal, 8" – 24" tall	
<i>PHYSOCARPUS OPULIFOLIUS</i>	COMMON NINEBARK	1 gal, 8" – 24" tall	
<i>VIBURNUM OPULUS VAR. AMERICANUM</i>	AMERICAN CRANBERRY	1 gal, 8" – 24" tall	
<i>VACCINIUM CORYMBOSUM</i>	HIGHBUSH BLUEBERRY	1 gal, 8" – 24" tall	

NOTES

- CONTRACTOR MAY SELECT OTHER SPECIES THAT MUST BE APPROVED BY THE OWNER: SELECT SPECIES SUITABLE FOR SOIL CONDITIONS PER TESTING AS DESCRIBED IN SEED BED/SOIL PREPARATION NOTES.
- MAINTAIN SPECIES DIVERSITY BY USING AT LEAST 6 SPECIES WITH NO MORE THAN 20% OF ANY ONE SPECIES.
- SHRUBS MAY BE CONTAINERIZED OR B&B.
- CLUSTERS WILL CONSIST OF 5 TO 7 INDIVIDUAL SHRUBS.
- PLANT SPECIES WILL BE LIMITED TO NO MORE THAN THREE SPECIES PER TOE WOOD APPLICATION (RANDOMLY APPLIED) AND NO MORE THAN 2 SPECIES PER CLUSTER.

PLANTING TABLE 7

Plot Date: 01/10/2019 - 4:58pm
Drawing name: V:\1938\active\193804489_CAD\DWG\Sheets\193804489_100.dwg
User: bender, 193804489_2501, 193804489_2501, 193804489_2500



12075 N. Corporate Parkway, Suite 200
Mequon, WI 53092
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**FOR PERMITTING/
REGULATOR
REVIEW**

SURFACE RESTORATION PLANTING TABLES
UNDERWOOD CREEK DAYLIGHTING
VILLAGE OF ELM GROVE
WAUKESHA COUNTY, WISCONSIN

DATE OF ISSUANCE
January 10, 2019

NO REVISION DATE

SURVEY JSH
DRAWN AJR
DESIGNED BG
CHECKED RJK
APPROVED JG

PROJ. NO. 193804489

SHEET NUMBER
SR-4

