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70%

**TITLE SHEET**

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**SILVER CREEK STREAM RESTORATION**  
CITY OF MANITOWOC  
CITY OF MANITOWOC, WI

DATE OF ISSUANCE  
December 14, 2022

NO	REVISION	DATE
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ENGINEER P.E.  
NO. -----

THE LOCATIONS OF EXISTING UTILITY INSTALLATIONS AS SHOWN ON THIS PLAN ARE APPROXIMATE. THERE MAY BE OTHER UNDERGROUND UTILITY INSTALLATIONS WITHIN THE PROJECT AREA THAT ARE NOT SHOWN.

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SURVEY	STANTEC
DRAWN	A.ROCK
DESIGNED	M.SIERACKI
CHECKED	R.STOKES
APPROVED	M.SIERACKI
PROJ. NO.	193709009

SHEET NUMBER  
G0.00

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## EROSION CONTROL AND ACCESS PLAN OVERVIEW

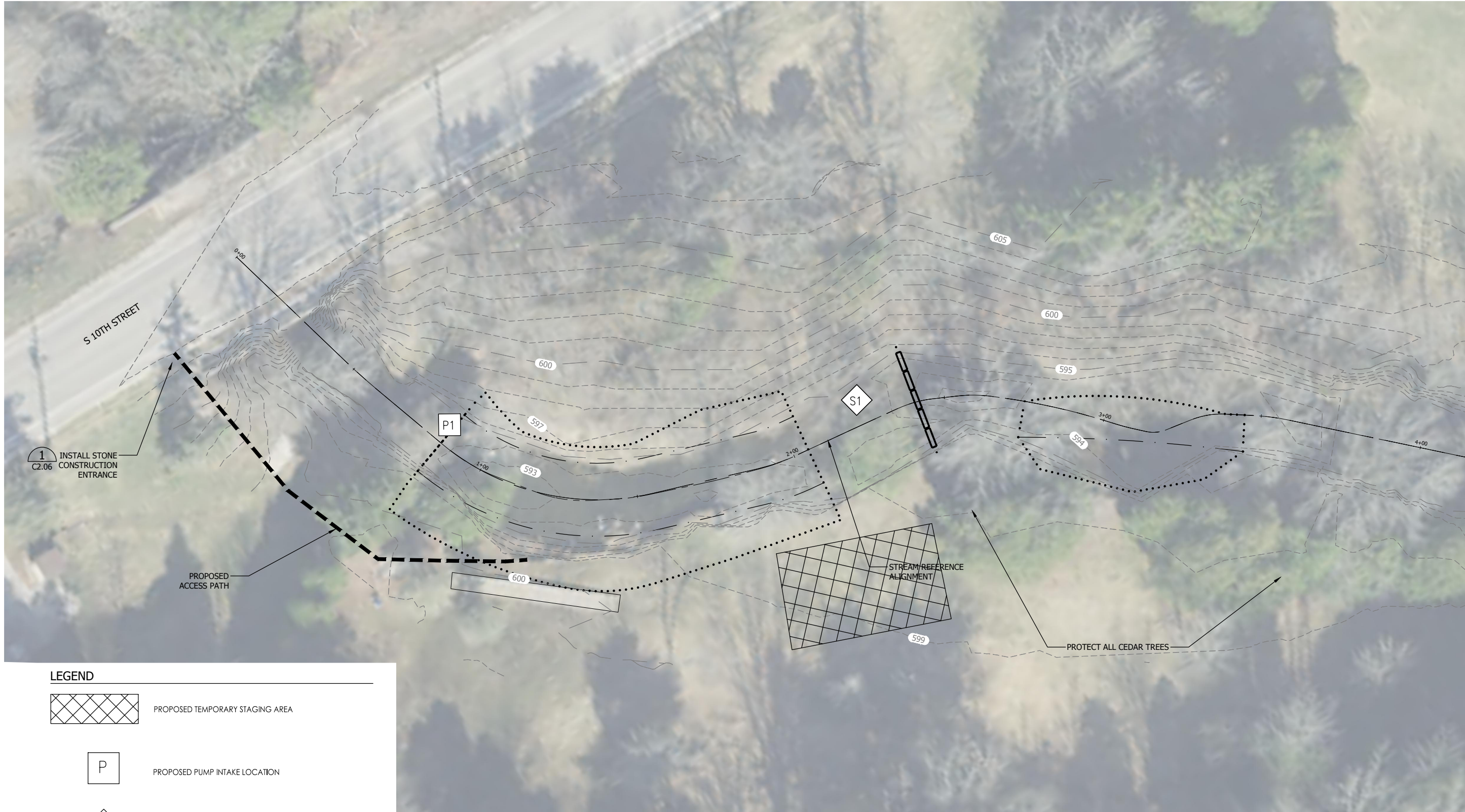
SILVER CREEK STREAM RESTORATION  
CITY OF MANITOWOC  
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SHEET NUMBER <b>C2.00</b>	



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. NO REPRODUCTION OR USE FOR ANY PURPOSE OTHER THAN THAT AUTHORIZED BY STANTEC IS FORBIDDEN.

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LEGEND



PROPOSED TEMPORARY STAGING AREA



PROPOSED PUMP INTAKE LOCATION



PROPOSED PUMP DISCHARGE AND SILT BAG LOCATION



PROPOSED ACCESS PATH



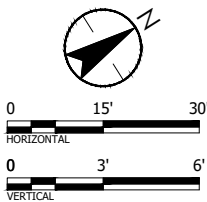
PROPOSED SILT FENCE



PROPOSED TURBIDITY BARRIER



PROPOSED GRADING LIMITS



EROSION CONTROL AND ACCESS PLAN - SITE 1

SILVER CREEK STREAM RESTORATION  
CITY OF MANITOWOC  
CITY OF MANITOWOC, WI

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December 14, 2022

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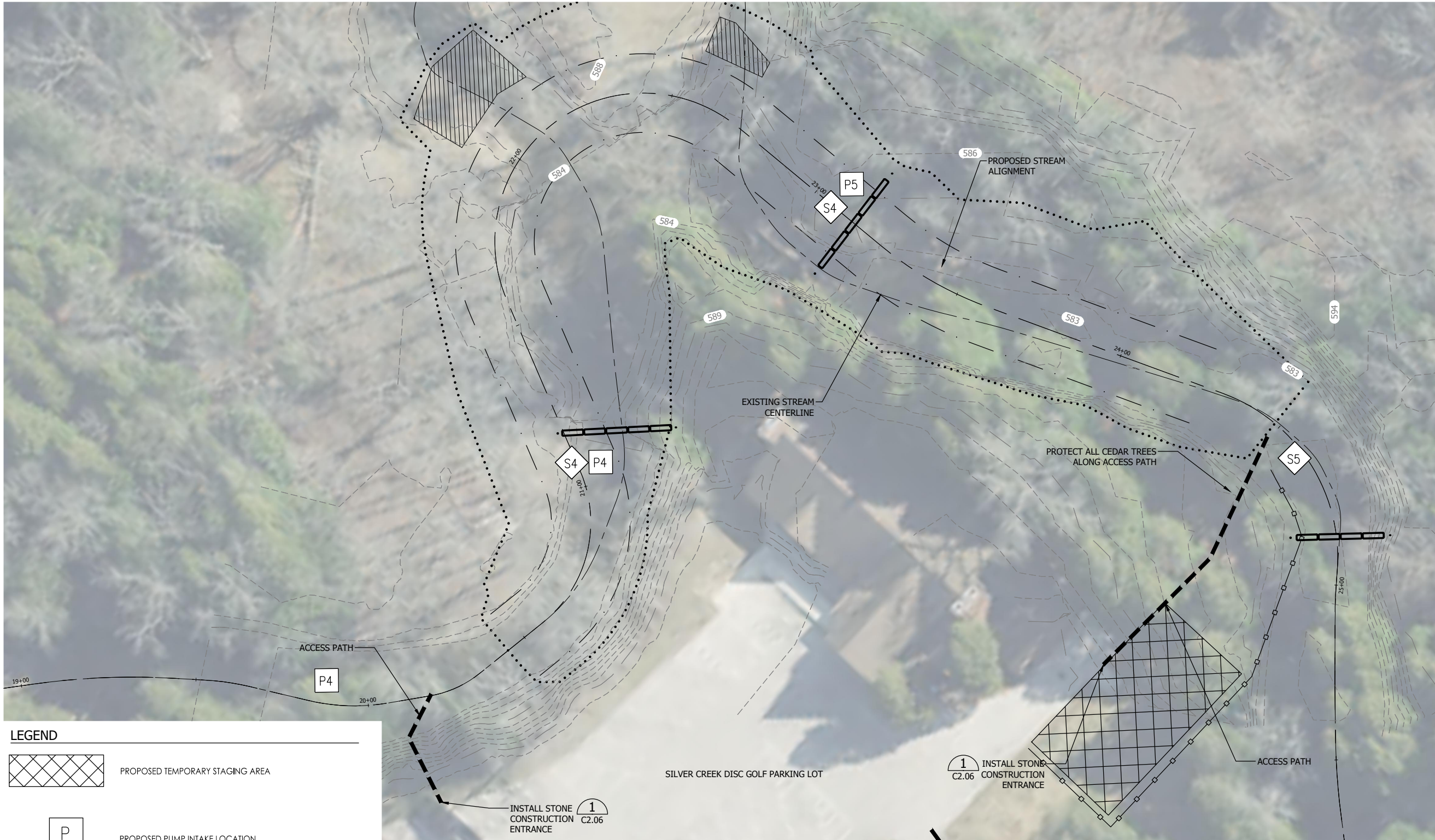
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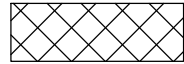


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#### LEGEND



PROPOSED TEMPORARY STAGING AREA



PROPOSED PUMP INTAKE LOCATION



PROPOSED PUMP DISCHARGE  
AND SILT BAG LOCATION



PROPOSED ACCESS PATH



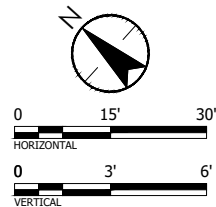
PROPOSED SILT FENCE



PROPOSED TURBIDITY BARRIER

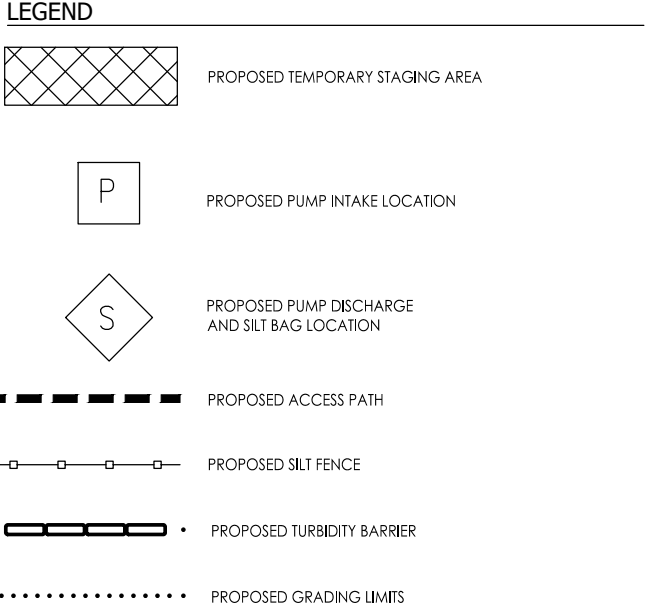


PROPOSED GRADING LIMITS





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EROSION CONTROL AND ACCESS PLAN - SITE 4

SILVER CREEK STREAM RESTORATION  
CITY OF MANITOWOC  
CITY OF MANITOWOC, WI

DATE OF ISSUANCE	
December 14, 2022	
NO	REVISION DATE
SURVEY	STANTEC
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CHECKED	R. STOKES
APPROVED	M. SIERACKI
PROJ. NO.	193709009
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GENERAL NOTES:

TOTAL AREA DISTURBED = XXX ACRES  
SOIL TYPES: NICHOLS VERY FINE SANDY LOAM AND SHIOCTON VERY FINE SANDY LOAM

- ALL EROSION CONTROL MEASURES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE WISCONSIN DNR EROSION AND SEDIMENT CONTROL STANDARDS AND ALL U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE REGULATIONS.
- THE CONTRACTOR SHALL CONTINUOUSLY MAINTAIN ALL EROSION CONTROL DEVICES AND STRUCTURES TO MINIMIZE EROSION.
- EROSION AND SEDIMENT CONTROL MEASURES SHALL BE MAINTAINED CONTINUOUSLY, RELOCATED WHEN AND AS NECESSARY, AND SHALL BE CHECKED AFTER EVERY RAINFALL. SEEDED AREAS SHALL BE CHECKED REGULARLY AND SHALL BE WATERED, RE-SEEDED AND MULCHED AS NECESSARY TO OBTAIN A DENSE STAND OF GRASS. IF ANY MEASURE IS FOUND TO BE DAMAGED, DEFICIENT, OR UNSTABLE IT SHALL BE REPAIRED IMMEDIATELY.
- ALL DISTURBED AREAS THAT ARE NOT OTHERWISE STABILIZED SHALL BE SEEDED, TEMPORARILY OR PERMANENTLY, IN ACCORDANCE WITH THE PLANTING PLAN AND THE WISCONSIN DNR EROSION AND SEDIMENT CONTROL STANDARDS. PERMANENT SEEDING AND GRASS ESTABLISHMENT ARE REQUIRED PRIOR TO PROJECT COMPLETION AND ACCEPTANCE.
- STABILIZATION MEASURES SHALL BE APPLIED TO STRUCTURES SUCH AS DAMS, DIKES, AND DIVERSIONS, IMMEDIATELY AFTER INSTALLATION.
- ALL SILT BASINS, SILT TRAPS, AND SEDIMENT BASINS SHALL BE CLEANED OUT WHEN HALF OF THE CAPACITY HAS BEEN REACHED.
- A PUMP AROUND OPERATION SHALL BE USED TO DIVERT FLOW DURING CONSTRUCTION WHEN PRACTICAL.
- CONSTRUCTION ACTIVITIES SHALL BE LIMITED TO AREA INSIDE THE "LIMITS OF DISTURBANCE."
- CONSTRUCTION TRAFFIC TO BE LIMITED TO "LIMITS OF DISTURBANCE" AS INDICATED ON THE CONSTRUCTION PLANS AND AS DIRECTED BY THE ENGINEER.

EROSION AND SEDIMENT CONTROL STAGING:

STAGE 1

- THE CONTRACTOR SHALL IDENTIFY THE PROJECT BOUNDARY, LIMITS OF DISTURBANCE, SENSITIVE AREAS, STAGING AREAS, AND CONSTRUCTION ENTRANCES WITH THE ENGINEER.
- THE CONTRACTOR SHALL MOBILIZE EQUIPMENT, MATERIALS, PREPARE STAGING AREAS, AND STOCKPILE AREAS AS SHOWN ON THE PLANS.
- THE CONTRACTOR SHALL PREPARE STABILIZED CONSTRUCTION ENTRANCES AS INDICATED ON THE PLAN.
- SEDIMENT BASINS AND TRAPS, SEDIMENT BARRIERS, AND OTHER MEASURES INTENDED TO TRAP SEDIMENT SHALL BE CONSTRUCTED AS A FIRST STEP IN ANY LAND DISTURBING ACTIVITY AND SHALL BE MADE FUNCTIONAL BEFORE UPSLOPE LAND DISTURBANCE TAKES PLACE.

STAGE 2

- A CONSTRUCTION ENTRANCE SHALL BE INSTALLED AT ALL ACCESS POINTS FROM ANY PUBLIC ROAD. WHEN A CRUSHED STONE CONSTRUCTION ENTRANCE HAS BEEN COVERED WITH SOIL OR HAS BEEN PUSHED INTO THE SOIL BY CONSTRUCTION TRAFFIC, IT SHALL BE REPLACED WITH A DEPTH OF STONE EQUAL TO THAT OF THE ORIGINAL APPLICATION.
- WHERE SEDIMENT IS TRANSPORTED ONTO A PAVED OR PUBLIC ROAD SURFACE, THE ROAD SURFACE SHALL BE CLEANED THOROUGHLY AT THE END OF EACH DAY. SEDIMENT SHALL BE REMOVED FROM THE ROADS BY SHOVELING OR SWEEPING AND TRANSPORTED TO A SEDIMENT CONTROL DISPOSAL AREA. STREET WASHING SHALL BE ALLOWED ONLY AFTER SEDIMENT IS REMOVED IN THIS MANNER.
- THE CONTRACTOR SHALL PROVIDE TEMPORARY GROUND COVER ON ALL DISTURBED SLOPES WITHIN 7 CALENDAR DAYS FOLLOWING COMPLETION OF ANY PHASE OF GRADING. TEMPORARY OR PERMANENT SOIL STABILIZATION IN ALL OTHER AREAS MUST BE COMPLETED NO LATER THAN 14 DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED.
- DURING CONSTRUCTION OF THE PROJECT, SOIL STOCKPILES SHALL BE STABILIZED OR PROTECTED WITH SEDIMENT TRAPPING MEASURES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE TEMPORARY PROTECTION AND PERMANENT STABILIZATION OF ALL SOIL STOCKPILES ON SITE AS WELL AS SOIL INTENTIONALLY TRANSPORTED FROM THE PROJECT SITE.
- THE CONTRACTOR SHALL INSTALL AND MAINTAIN, THROUGHOUT THE DURATION OF CONSTRUCTION, ALL EROSION CONTROL MEASURES IN ACCORDANCE WITH THESE PLANS AND IN ACCORDANCE WITH APPLICABLE EROSION AND SEDIMENT CONTROL REGULATIONS.

STAGE 3

- ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED WITHIN 14 DAYS AFTER FINAL SITE STABILIZATION OR AFTER THE TEMPORARY MEASURES ARE NO LONGER NEEDED. TRAPPED SEDIMENT AND DISTURBED SOIL AREAS RESULTING FROM THE DISPOSITION OF TEMPORARY MEASURES SHALL BE PERMANENTLY STABILIZED TO PREVENT FURTHER EROSION AND SEDIMENTATION.
- PERMANENT GROUND COVER FOR ALL DISTURBED AREAS SHALL BE PROVIDED TO REPLACE TEMPORARY MEASURES WITHIN 14 DAYS OR AS SOON AS IS PRACTICABLE.

TEMPORARY SEEDING SCHEDULE  
Cool Season Mix - Mulch @ 6000 LB/AC

Scientific Name	Common Name	Seeding Rate (LB/AC)	Seeding Dates
<i>Secale cereale</i>	Cereal Rye	28	Sep 15 - Apr 15
<i>Pisum sativum</i>	Austrian Winter Pea	28	Sep 15 - Apr 15
<i>Raphanus sativus</i> Var. <i>Niger</i>	Daikon/Grounding Radish	4	Sep 15 - Apr 15
Total Seeding Rate (LB/AC)		60	

Warm Season Mix - Mulch @ 4000 LB/AC

Scientific Name	Common Name	Seeding Rate (LB/AC)	Seeding Dates
<i>Raphanus sativus</i> var. <i>niger</i>	Daikon/Groundhog Radish	10	Apr 15 - Sep 15
<i>Chamaecrista fasciculata</i>	Partridge Pea	10	Apr 15 - Sep 15
<i>Fagopyrum esculentum</i>	Buckwheat	10	Apr 15 - Sep 15
<i>Vigna unguiculata</i>	Iron Clay Pea	20	Apr 15 - Sep 15
<i>Elymus canadensis</i>	Canada Wild Rye	10	Apr 15 - Sep 15
Total Seeding Rate (LB/AC)		60	

NOTE:  
SEEDS SHALL NOT BE APPLIED ON TOP OF SNOW.

GENERAL CONSTRUCTION SEQUENCE

THE CONTRACTOR SHALL FOLLOW THE SEQUENCE OF CONSTRUCTION IN ACCORDANCE WITH THE PLANS AND AS DIRECTED BY THE ENGINEER.

THE CONTRACTOR SHALL ONLY CONDUCT STREAM WORK, INCLUDING INSTALLATION OF IN-STREAM STRUCTURES, GRADING, STABILIZATION MEASURES, AND SEEDING AND MULCHING, ON A LIMITED SECTION OF STREAM IN A MANNER THAT CAN BE ENTIRELY COMPLETED WITHIN A SINGLE DAY OR THE SECTION OF CHANNEL MUST BE BUILT OFFLINE, IN THE DRY, IF IT WILL NOT BE STABILIZED AT THE END OF THE DAY.

- THE CONTRACTOR SHALL INSTALL ALL TEMPORARY ROCK CHECK DAMS, SILT FENCE, TREE PROTECTION FENCE, AND MULCHING AROUND ALL CONSTRUCTION AREAS INCLUDING STAGING AND STOCKPILE AREAS AS INDICATED ON THE CONSTRUCTION PLANS AND AS DIRECTED BY THE ENGINEER.
- THE CONTRACTOR SHALL INSTALL ALL TEMPORARY STREAM CROSSINGS AS DIRECTED BY THE ENGINEER. DITCHES AND STREAM REACHES WILL BE LEFT OPEN DURING INITIAL PHASES OF CONSTRUCTION TO ALLOW FOR DRAINAGE AND TO KEEP SITE ACCESSIBLE. WHERE TEMPORARY STREAM CROSSINGS ARE NOT PRACTICAL AS DETERMINED BY THE ENGINEER, A TEMPORARY FORD CROSSING SHALL BE USED.
- CONSTRUCTION ACTIVITIES ASSOCIATED WITH THE CONSTRUCTION OF THE CHANNEL BED, CHANNEL BANKS, IN-STREAM STRUCTURES, AND STABILIZATION MEASURES REQUIRE THAT CONSTRUCTION OCCURS IN THE ACTIVE CHANNEL (IN FLOWING WATER). WHERE POSSIBLE AND APPROPRIATE, A PUMP-AROUND OPERATION MAY BE USED TO DIVERT FLOW DURING CONSTRUCTION AS DIRECTED BY THE ENGINEER.
- THE CONTRACTOR SHALL BEGIN CLEARING, FLOODPLAIN EXCAVATION, AND GRADING WORK TO DESIGN GRADES AT THE UPSTREAM END OF EACH CHANNEL AS INDICATED ON THE CONSTRUCTION PLANS. THE CONTRACTOR SHALL NOT DISTURB ANY MORE FLOODPLAIN AREA AND STREAM REACH THAN NECESSARY.
- ONCE A SECTION OF STREAM AND FLOODPLAIN HAS BEEN EXCAVATED TO DESIGN GRADES, IN-STREAM STRUCTURES, MATTING, AND TRANSPLANTS SHALL BE INSTALLED IN THAT SECTION.
- THE CONTRACTOR SHALL BEGIN INSTALLING IN-STREAM STRUCTURES FROM THE UPSTREAM SECTION WORKING DOWNSTREAM. IF EXCESSIVE SEDIMENTATION DOWNSTREAM BECOMES A CONCERN, THE ENGINEER OR PROJECT MANAGER IN CHARGE MAY DIRECT THE CONTRACTOR TO INSTALL A TEMPORARY ROCK CHECK DAM AND SETTLING BASIN DOWNSTREAM. THIS AREA IS TO BE MAINTAINED ON A REGULAR BASIS BY THE CONTRACTOR.
- ONCE A LENGTH OF STREAM WORK IS COMPLETE, THE CONTRACTOR WILL APPLY TEMPORARY SEEDING, PERMANENT SEEDING, AND MULCH TO ALL AREAS DISTURBED DURING CONSTRUCTION. TEMPORARY AND PERMANENT SEEDING MIXTURES WILL BE APPLIED AS SHOWN ON THE PLANTING PLAN. TEMPORARY SEEDING WILL BE APPLIED IN ALL AREAS SUSCEPTIBLE TO EROSION SUCH THAT GROUND COVER IS ESTABLISHED WITHIN 14 CALENDAR DAYS FOLLOWING COMPLETION OF ANY GRADING PHASE. PERMANENT GROUND COVER WILL BE ESTABLISHED FOR ALL DISTURBED AREAS WITHIN 14 CALENDAR DAYS FOLLOWING COMPLETION OF CONSTRUCTION.
- WHERE THE INITIATION OF STABILIZATION MEASURES IS PRECLUDED BY SNOW COVER OR FROZEN GROUND CONDITIONS OR ADVERSE SOGGY GROUND CONDITIONS, STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS PRACTICABLE.
- ALL SEEDING AND MULCHING SHALL BE COMPLETED BEFORE LEAVING THE PROJECT SITE ALONG WITH REMOVAL OF ANY TEMPORARY STREAM CROSSINGS AND TEMPORARY CHECK DAMS.
- THE CONTRACTOR OR OTHER QUALIFIED PERSONNEL SHALL INSTALL LIVE STAKING ACCORDING TO THE PLANTING DETAILS AND SPECIFICATIONS AND ALL PLANTINGS SHALL BE PERFORMED DURING THE APPROPRIATE TIME OF YEAR.
- THE CONTRACTOR SHALL ENSURE THAT THE SITE IS FREE OF TRASH AND LEFTOVER MATERIALS PRIOR TO DEMOBILIZATION OF EQUIPMENT FROM THE SITE.

PHASING OF WORK

PHASE 1 - SITE PREPARATION

- INSTALL OR STABILIZE CONSTRUCTION ENTRANCE PAD OFF OF 10TH STREET AND INSTALL TEMPORARY EROSION CONTROL MEASURES FOR SITE PREPARATION.
- UTILIZE EXISTING GRAVEL ROAD FOR SITE ACCESS.
- INSTALL TEMPORARY STAGING AREA NEAR THE CENTER OF THE SITE AS INDICATED ON THE PLANS.
- INSTALL SENSITIVE AREA PROTECTION FENCE AROUND SENSITIVE AREAS AND AS SHOWN IN PLANS.

PHASE 2 - BUILD AREA 1

- INSTALL TEMPORARY EROSION CONTROL MEASURES FOR THE NEXT PHASE OF WORK.
- CONSTRUCT IN-STREAM STRUCTURES IN THE DRY FROM APPROX. STA 0+85 TO 2+05. STOCKPILE EXCESS SOIL IN LOCATIONS SHOWN IN PLANS.
- CONSTRUCT IN-STREAM STRUCTURES IN THE DRY FROM APPROX. STA 2+76 TO 3+44. STOCKPILE EXCESS SOIL IN LOCATIONS SHOWN IN PLANS.
- PERFORM ADJACENT FLOODPLAIN GRADING AS SPECIFIED IN PLANS.
- STABILIZE DISTURBED AREA WITH TEMPORARY AND PERMANENT SEED AND MULCH.

PHASE 3 - BUILD AREA 2

- INSTALL TEMPORARY EROSION CONTROL MEASURES FOR THE NEXT PHASE OF WORK.
- CONSTRUCT IN-STREAM STRUCTURES IN THE DRY FROM APPROX. STA 13+15 TO 16+51. STOCKPILE EXCESS SOIL IN LOCATIONS SHOWN IN PLANS.
- PERFORM ADJACENT FLOODPLAIN GRADING AS SPECIFIED IN PLANS.
- STABILIZE DISTURBED AREA WITH TEMPORARY AND PERMANENT SEED AND MULCH.

SITE PRESERVATION NOTES

THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING ANY DAMAGE BY THE CONTRACTOR TO EXISTING FACILITIES INCLUDING BUT NOT LIMITED TO ROADS, GATES, FENCES, CURBS, AND UTILITIES. CONSTRUCTION ENTRANCES SHALL BE INSTALLED AT ALL ACCESS LOCATIONS PER THE PLANS AND SPECIFICATIONS.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR PRESERVING THE ORIGINAL CONDITION OF THE ROAD, GATES, AND FENCES, REQUIRED FOR ACCESS DURING CONSTRUCTION.

EROSION CONTROL MEASURES DURING CONSTRUCTION:

DURING CONSTRUCTION THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING ADDITIONAL EROSION CONTROL MEASURES NOT SHOWN ON THE PLANS BUT NECESSARY TO CONTROL EXCESS SEDIMENT, IF DETERMINED BY THE ENGINEER.

STAGING AND STOCKPILE AREAS:

SPECIFIED AREAS SHOWN ON THE PLANS HAVE BEEN ESTABLISHED AS STAGING AND STOCKPILE AREAS. THE CONTRACTOR MAY ESTABLISH ADDITIONAL STAGING AND STOCKPILE AREAS ALONG THE PROJECT, AS NECESSARY, TO CARRY OUT THE WORK. ALL STAGING AND STOCKPILE AREAS MUST BE INSIDE THE LIMITS OF DISTURBANCE AND APPROVED BY THE ENGINEER. SILT FENCE SHALL BE REQUIRED IN AREAS WHERE LOOSE SOIL HAS BEEN PLACED IN THE STAGING AND STOCKPILE AREAS.

THE CONTRACTOR SHALL STOCKPILE TOP SOIL WHEN CONSTRUCTING THE STAGING AREA FOR FINAL STABILIZATION AFTER CONSTRUCTION IS COMPLETE.

RAIN GAUGE:

THE CONTRACTOR SHALL BE RESPONSIBLE FOR HAVING A RAIN GAUGE ON THE PROJECT SITE AND FOR RECORDING DAILY RAINFALL AMOUNTS DURING CONSTRUCTION.

PHASE 4 - BUILD AREA 3

- INSTALL TEMPORARY EROSION CONTROL MEASURES FOR THE NEXT PHASE OF WORK.
- CONSTRUCT IN-STREAM STRUCTURES IN THE DRY FROM APPROX. STA 21+17 TO 24+22. STOCKPILE EXCESS SOIL IN LOCATIONS SHOWN IN PLANS.
- PERFORM ADJACENT FLOODPLAIN GRADING AS SPECIFIED IN PLANS.
- STABILIZE DISTURBED AREA WITH TEMPORARY AND PERMANENT SEED AND MULCH.

PHASE 5 - BUILD AREA 4

- INSTALL TEMPORARY EROSION CONTROL MEASURES FOR THE NEXT PHASE OF WORK.
- CONSTRUCT IN-STREAM STRUCTURES IN THE DRY FROM APPROX. STA 30+55 TO 31+80. STOCKPILE EXCESS SOIL IN LOCATIONS SHOWN IN PLANS.
- PERFORM ADJACENT FLOODPLAIN GRADING AS SPECIFIED IN PLANS.
- STABILIZE DISTURBED AREA WITH TEMPORARY AND PERMANENT SEED AND MULCH.

PHASE 6 - REMOVE TEMPORARY EROSION CONTROL MEASURES AND DEMOBILIZE

- REMOVE DEBRIS AND UNUSED MATERIALS FROM TEMPORARY STAGING AREA.
- STABILIZE ALL DISTURBED AREAS WITH TEMPORARY AND PERMANENT SEED AND MULCH AND REMOVE TEMPORARY EROSION CONTROL MEASURES.
- DEMOBILIZE EQUIPMENT.

NOTE:

ACTUAL PHASING OF WORK MAY DIFFER FROM THIS PROPOSED SEQUENCE BASED ON UNFORESEEN DELAYS DUE TO UTILITY COMPANY RESPONSIVENESS, SITE CONDITIONS OR WEATHER PATTERNS. CONTRACTOR SHALL ONLY MODIFY PHASING OF WORK WITH ENGINEER'S PRIOR APPROVAL.



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70%

EROSION CONTROL NOTES

SILVER CREEK STREAM RESTORATION  
CITY OF MANITOWOC  
CITY OF MANITOWOC, WI

DATE OF ISSUANCE  
December 14, 2022

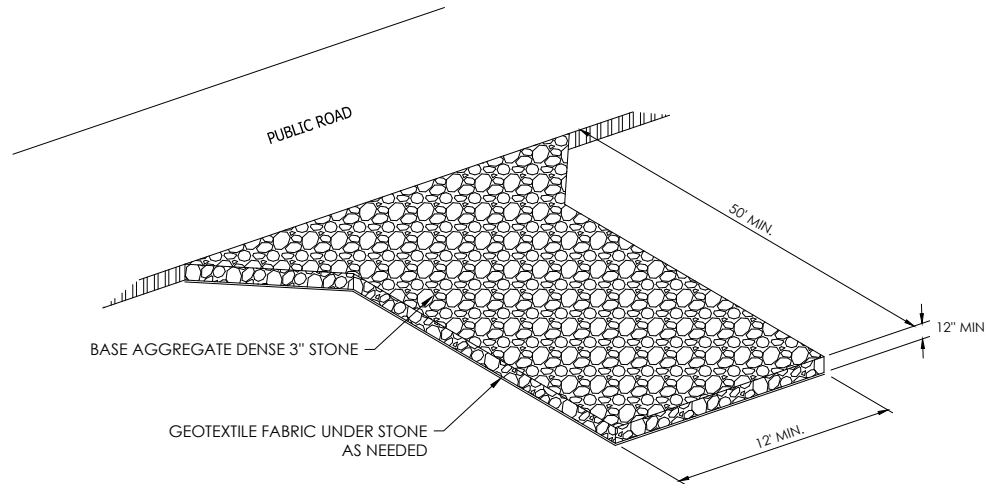
NO	REVISION	DATE

SURVEY	STANTEC
DRAWN	R.HATLEY
DESIGNED	R.HATLEY
CHECKED	R.STOKES
APPROVED	M.SIERACKI
PROJ. NO.	193709009

SHEET NUMBER

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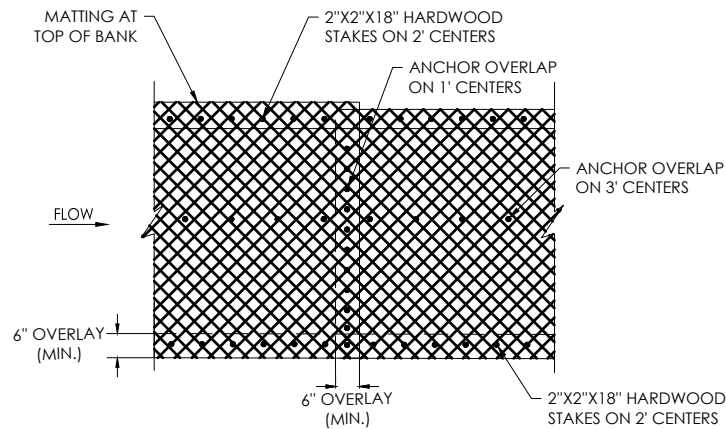
**NOTES:**

1. GRADE AND REMOVE ALL VEGETATION AND OBJECTIONABLE MATERIAL FROM PROPOSED ENTRANCE AREA.
2. PROVIDE DRAINAGE TO SUITABLE OUTLET.

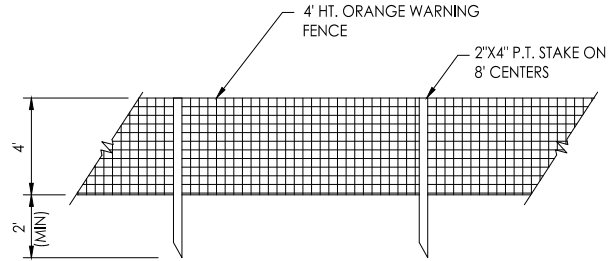
**MAINTENANCE:**

1. CONSTRUCTION ENTRANCE SHALL BE INSPECTED AFTER EACH RAINFALL EVENT.
2. MAINTAIN CONSTRUCTION ENTRANCE IN CONDITION NECESSARY TO PREVENT MUD OR SEDIMENT FROM LEAVING THE SITE.
3. IMMEDIATELY REMOVE ANY OBJECTIONABLE MATERIAL SPILLED, WASHED, OR TRACKED ONTO PUBLIC ROADWAYS.

**1 STONE CONSTRUCTION ENTRACNE**  
NTS



**3 COIR FIBER MATTING DETAIL**  
NTS



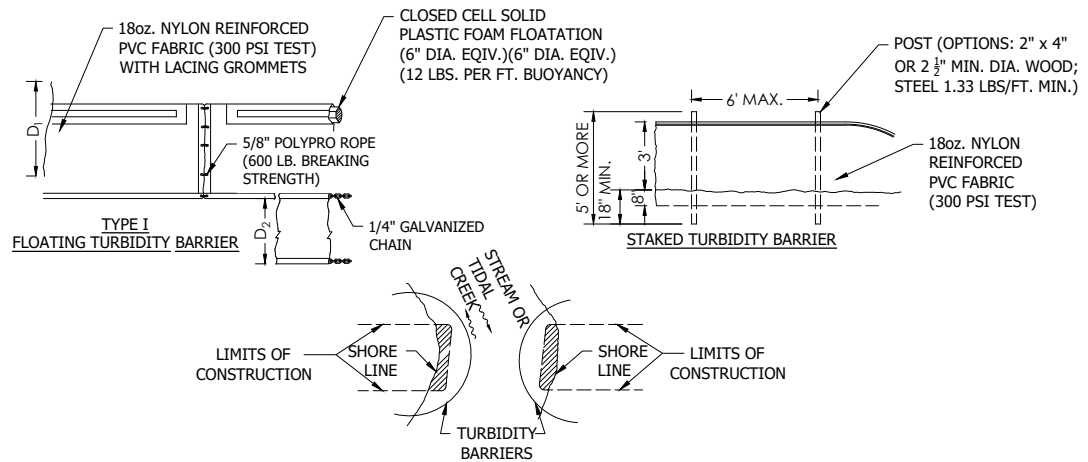
**NOTES:**

1. PROVIDE FENCE AS SHOWN ON PLAN.
2. PROVIDE AT LEAST ONE FOOT OF DISTANCE FROM TREE TO FENCE FOR EACH INCH OF TREE DBH. LOCATE FENCE OUTSIDE OF CRITICAL ROOT ZONE

**MAINTENANCE:**

1. REMOVE TREE PROTECTION FENCES WHEN ADJACENT CONSTRUCTION IS COMPLETED.
2. PRUNE ANY DAMAGED LIMBS OR ROOTS. USE TREE PAINT IF NECESSARY.
3. CONTINUE MAINTENANCE CARE IF NECESSARY. THIS MAY INCLUDE WATER, MULCH, AND FERTILIZER.

**2 CONSTRUCTION SITE FENCING**  
NTS



D<sub>1</sub> = 5' STD. (SINGLE PANEL FOR DEPTH 5' OR LESS).  
D<sub>2</sub> = 5' STD. (ADDITIONAL PANEL FOR DEPTHS >5'). CURTAIN TO REACH BOTTOM UP TO DEPTHS OF 10 FEET.  
TWO (2) PANELS TO BE USED FOR DEPTHS GREATER THAN 10 FEET UNLESS SPECIAL DEPTH CURTAINS SPECIFICALLY CALLED FOR IN THE PLANS OR AS DETERMINED BY THE ENGINEER. NOTICE: COMPONENTS OF TYPE I MAY BE SIMILAR OR IDENTICAL TO PROPRIETARY DESIGNS. ANY INFRINGEMENT ON THE PROPRIETARY RIGHTS OF THE DESIGNER SHALL BE THE SOLE RESPONSIBILITY OF THE USER. SUBSTITUTIONS FOR TYPE I SHALL BE AS APPROVED BY THE ENGINEER.

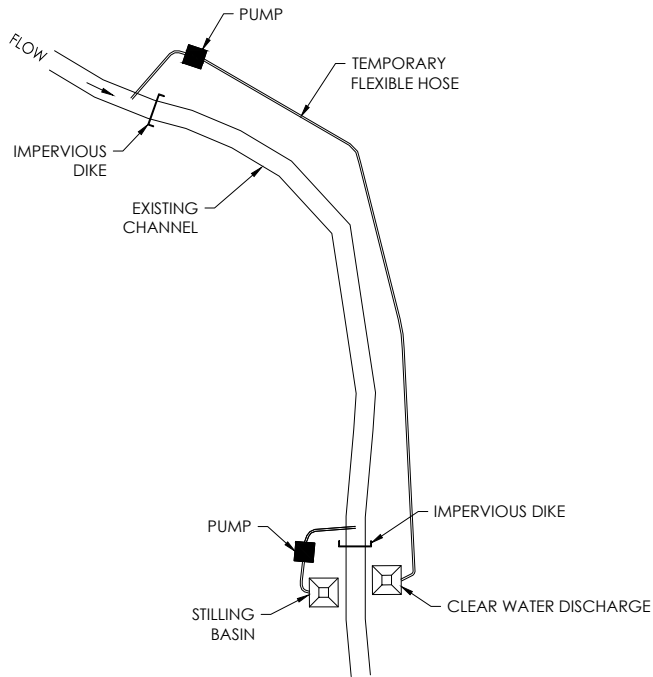
**NOTES:**

1. TURBIDITY BARRIERS ARE TO BE USED IN ALL PERMANENT BODIES OF WATER REGARDLESS OF WATER DEPTH.
2. TURBIDITY BARRIERS FOR FLOWING STREAMS AND TIDAL CREEKS MAY BE EITHER FLOATING, OR STAKED TYPES OR ANY COMBINATION OF TYPES THAT WILL SUIT SITE CONDITIONS AND MEET EROSION CONTROL AND WATER QUALITY REQUIREMENTS.
3. THE BARRIER TYPE(S) WILL BE AT THE CONTRACTORS OPTION UNLESS OTHERWISE SPECIFIED IN THE PLANS, HOWEVER PAYMENT WILL BE UNDER THE PAY ITEM(S) ESTABLISHED IN THE PLANS FOR FLOATING TURBIDITY BARRIER AND/OR STAKED TURBIDITY BARRIER.
4. POSTS IN STAKED TURBIDITY BARRIERS TO BE INSTALLED IN VERTICAL POSITION UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
5. NUMBER AND SPACING OF ANCHORS DEPENDENT ON WATER VELOCITIES.
6. DEPLOYMENT OF BARRIER AROUND PILE LOCATIONS MAY VARY TO ACCOMMODATE CONSTRUCTION OPERATIONS.
7. NAVIGATION MAY REQUIRE SEGMENTING BARRIER DURING CONSTRUCTION OPERATIONS.

**4 TURBIDITY BARRIER DETAIL**  
NTS



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**SEQUENCE OF CONSTRUCTION  
FOR TYPICAL PUMP-AROUND**

1. INSTALL STILLING BASINS AND TEMPORARY DITCH CHECKS (STRAW BALES).
2. INSTALL UPSTREAM PUMP AND TEMPORARY FLEXIBLE HOSE.
3. PLACE UPSTREAM IMPERVIOUS DIKE AND BEGIN PUMPING OPERATIONS FOR STREAM DIVERSION.
4. PLACE DOWNSTREAM IMPERVIOUS DIKE AND PUMPING APPARATUS. DEWATER ENTRAPPED AREA.
5. PERFORM STREAM RESTORATION WORK IN ACCORDANCE WITH THE PLANS.
6. EXCAVATE ANY ACCUMULATED SILT AND DEWATER BEFORE REMOVAL OF IMPERIOUS DIKES. REMOVE IMPERVIOUS DIKES, PUMPS, AND TEMPORARY FLEXIBLE HOSE. (DOWNSTREAM DIKE FIRST).
7. ALL GRADING AND STABILIZATION MUST BE COMPLETED WITHIN THE PUMP-AROUND AREA BETWEEN THE IMPERVIOUS DIKES. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE LOCATION OF THE IMPERVIOUS DIKES.
8. REMOVE STILLING BASINS AND TEMPORARY DITCH CHECKS, AND BACKFILL. STABILIZED DISTURBED AREA WITH SEED AND MULCH.

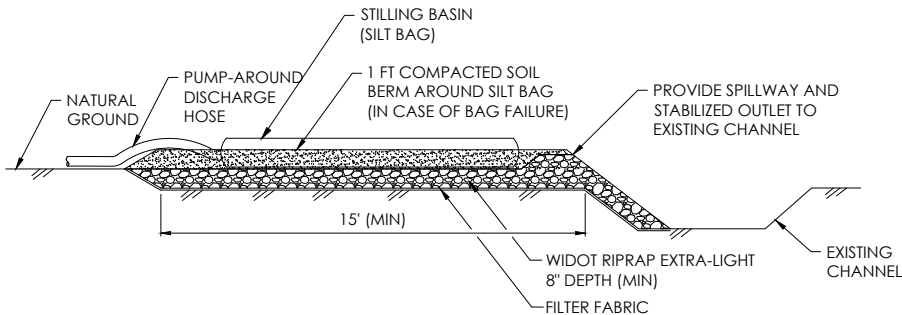
**NOTES:**

1. PUMP AROUND OPERATIONS MAY ONLY BE USED WHILE PERSONNEL ARE ON SITE.
2. ALL EXCAVATION SHALL BE PERFORMED IN ONLY DRY OR ISOLATED SECTIONS OF THE CHANNEL.
3. IMPERVIOUS DIKES ARE TO BE USED TO ISOLATE WORK FROM STREAM FLOW WHEN NECESSARY.
4. ALL GRADED AREAS SHALL BE STABILIZED WITHIN 24 HOURS.
5. PUMPS AND HOSES SHALL BE OF SUFFICIENT SIZE TO DEWATER THE WORK AREA.

**MAINTENANCE:**

1. PUMP AROUND OPERATIONS SHALL BE INSPECTED TWICE DAILY WHEN IN USE, OR AS DIRECTED BY THE ENGINEER.
2. PUMP, SILT BAGS, HOSES, AND STILLING BASIN SHALL BE MAINTAINED IN A CONDITION NECESSARY TO FUNCTION PROPERLY.

**1 PUMP-AROUND OPERATIONS (TYP.)**  
NTS



**2 STILLING BASIN WITH ROCK PAD AND BERM**  
NTS

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NO	REVISION	DATE

SURVEY	STANTEC
DRAWN	M.SIERACKI
DESIGNED	M.SIERACKI
CHECKED	R.STOKES
APPROVED	M.SIERACKI
PROJ. NO.	193709009



Plot Date: 12/14/2022 - 12:54pm  
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SITE PLAN OVERVIEW

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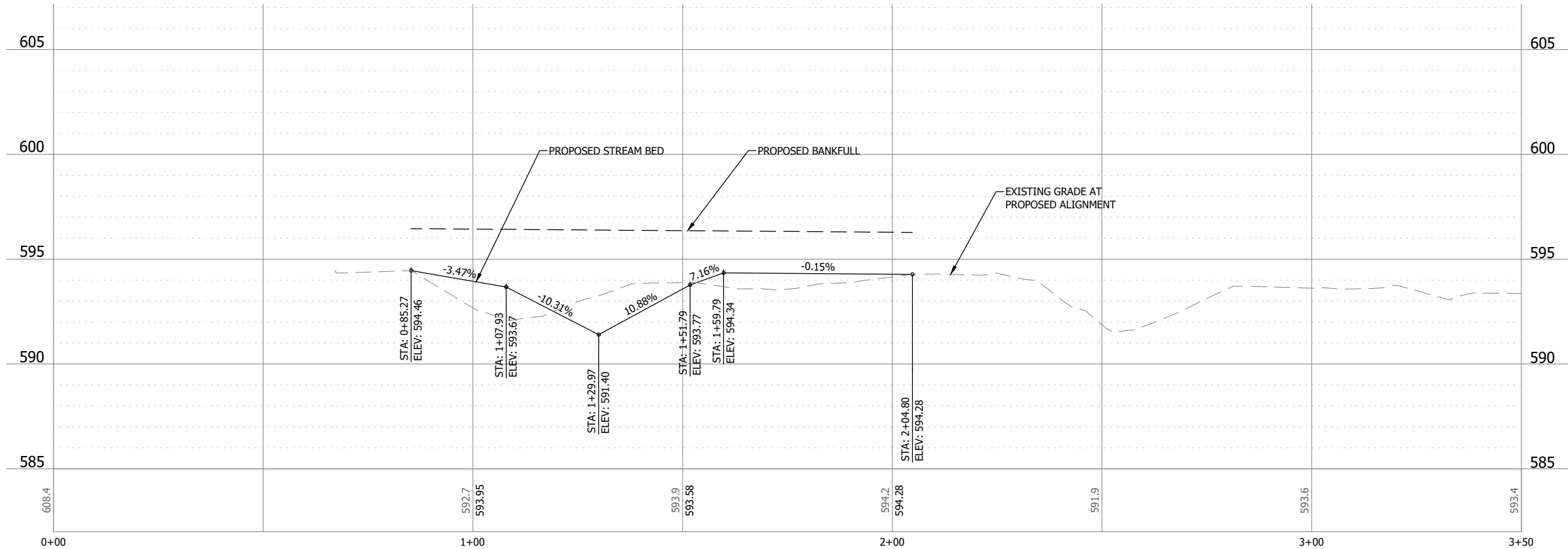
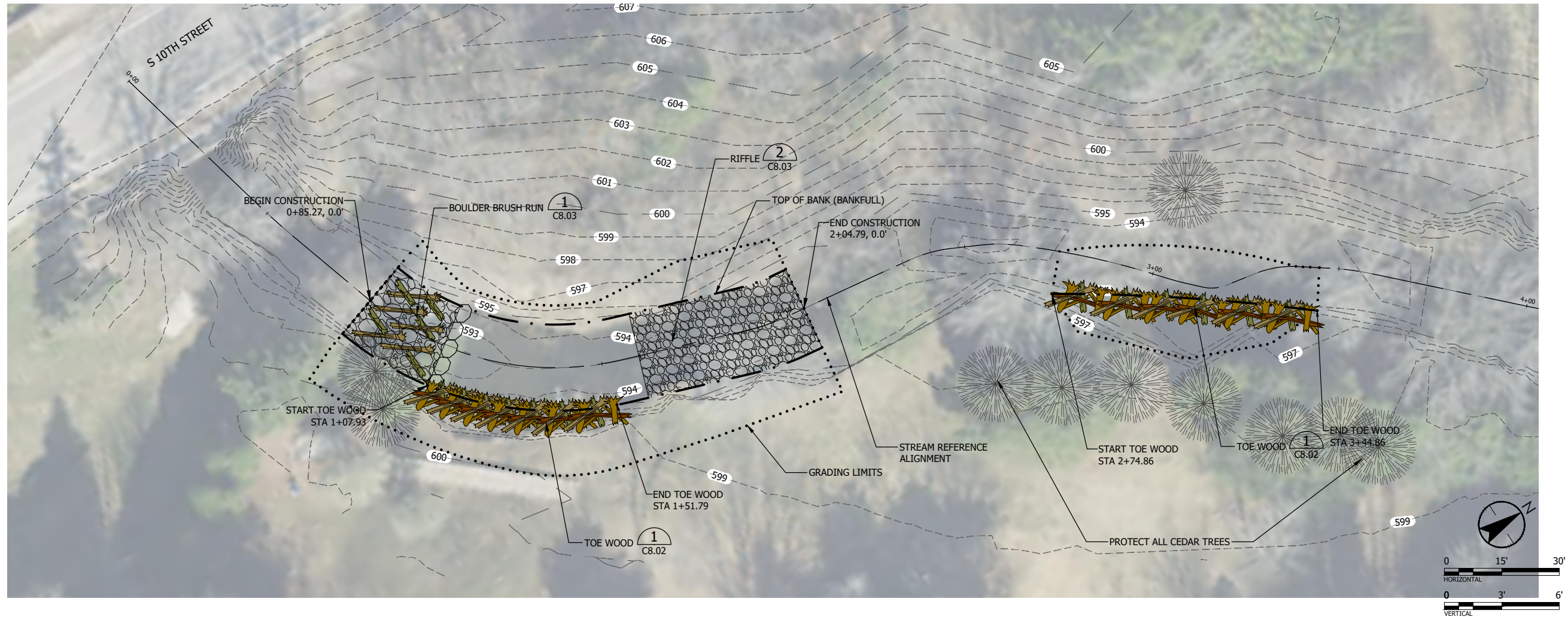
SILVER CREEK STREAM RESTORATION  
CITY OF MANITOWOC  
CITY OF MANITOWOC, WI

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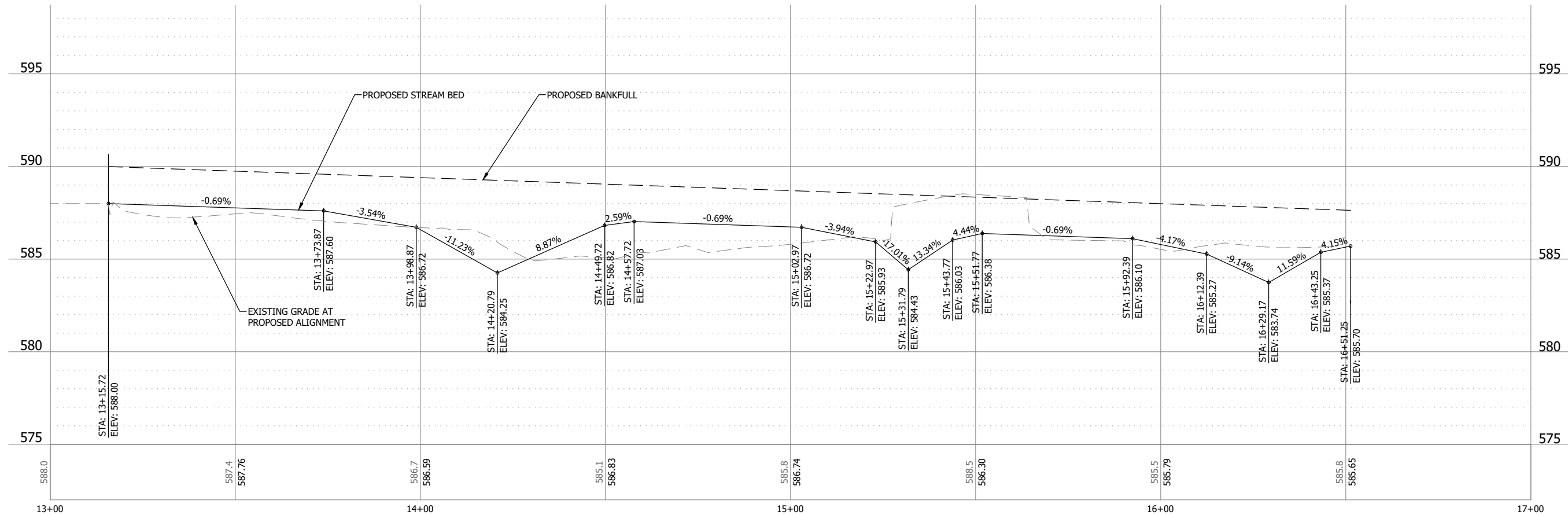
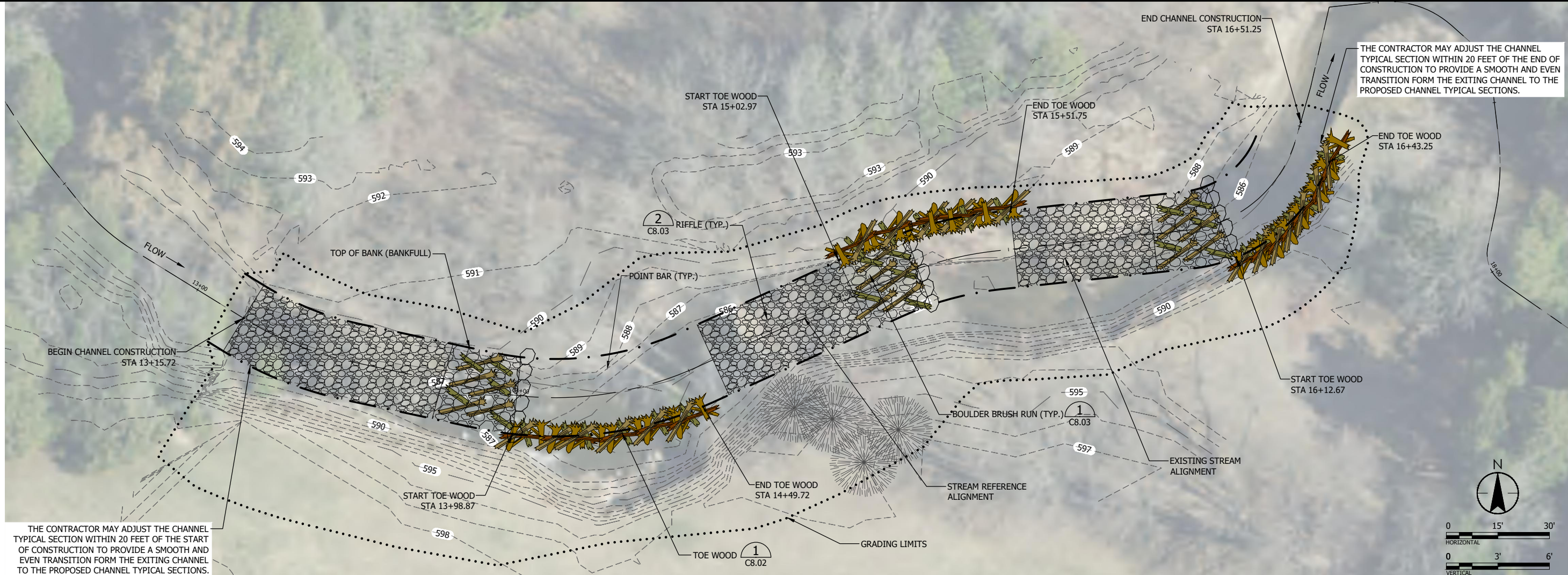
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**SITE PLAN - AREA 3**

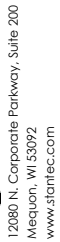
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DESIGNED	M. SIERACKI
CHECKED	R. STOKES
APPROVED	M. SIERACKI
PROJ. NO.	193709009
SHEET NUMBER	
C3.03	



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70%

**SITE PLAN - AREA 4**

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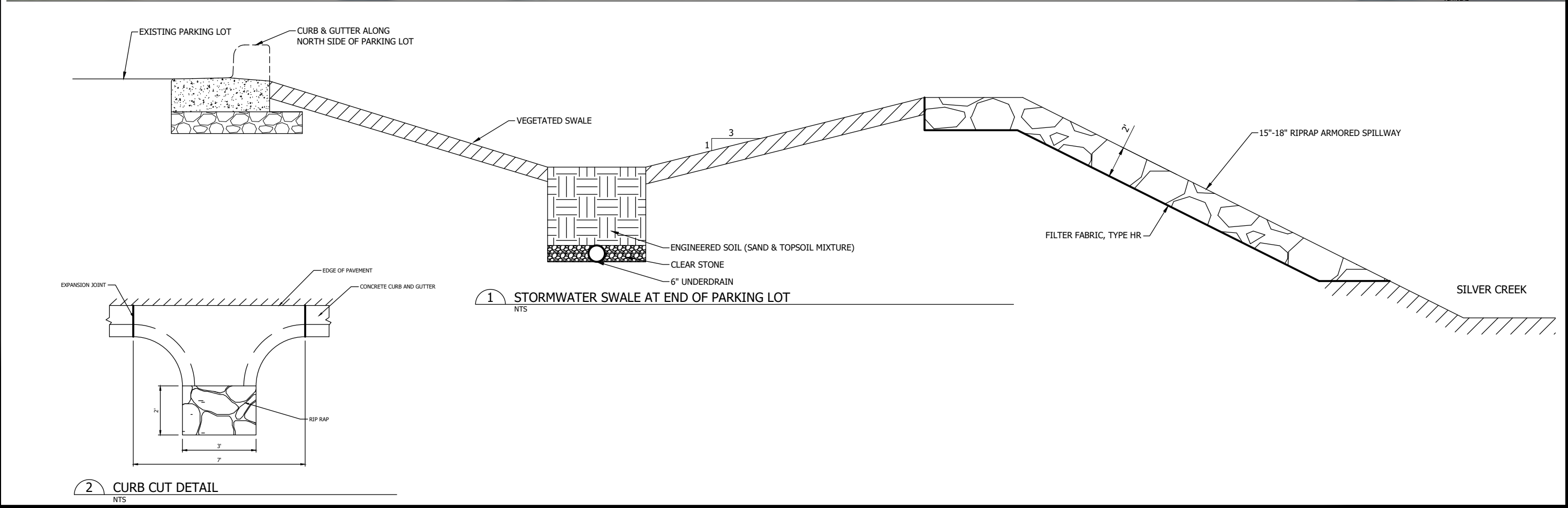
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CHECKED	R. STOKES
APPROVED	M. SIERACKI
PROJ. NO.	193709009

SHEET NUMBER  
C3.04



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## SITE PLAN - PARKING LOT DRAINAGE

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STANTEC	
<b>DRAWN</b>	
A. ROCK	
<b>DESIGNED</b>	
M.SIERACKI	
<b>CHECKED</b>	
R.STOKES	
<b>APPROVED</b>	
M.SIERACKI	
<b>PROJ. NO.</b>	
193709009	
<b>SHEET NUMBER</b>	
<b>C3.05</b>	



Plot Date: 12/14/2022 - 12:57pm  
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Xrefs: TB-34x22-MEQ, Quarry Stone Bank, BrushRun, Riffle, BoulderBrushRun



## 2 TYPICAL POOL SECTION

### 3 QUARRY STONE BANK

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C8.01



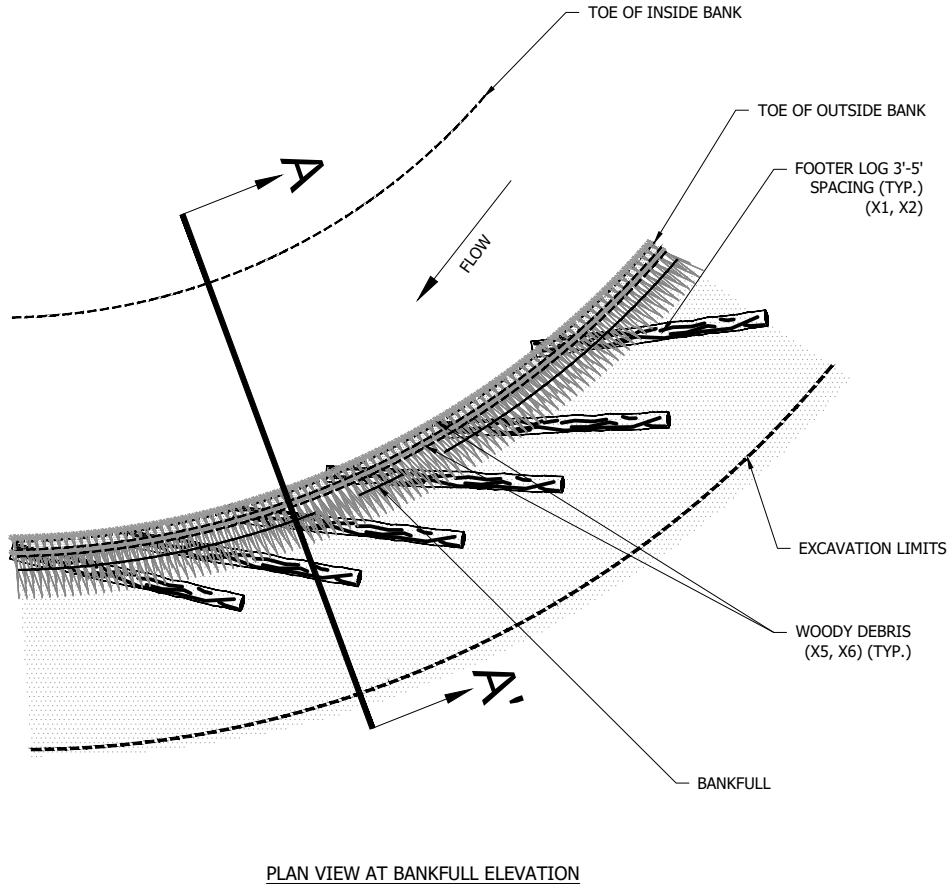
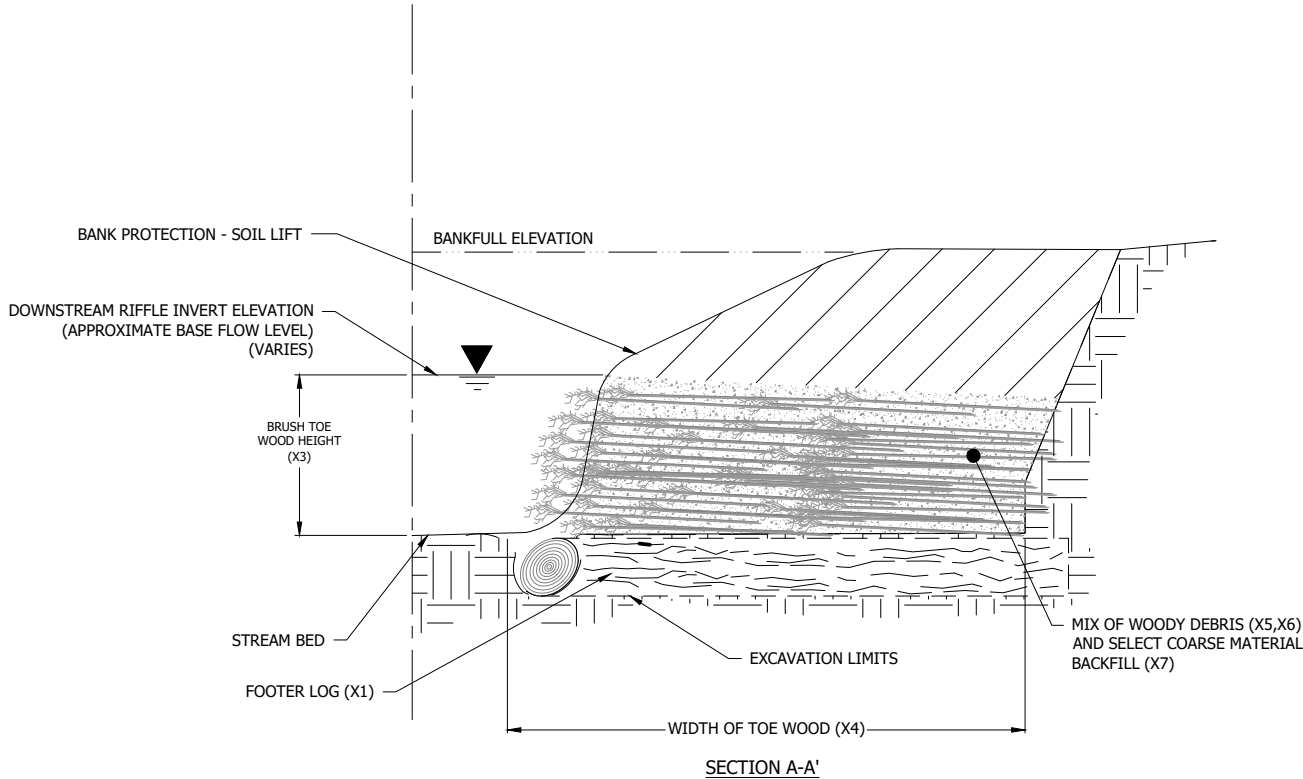
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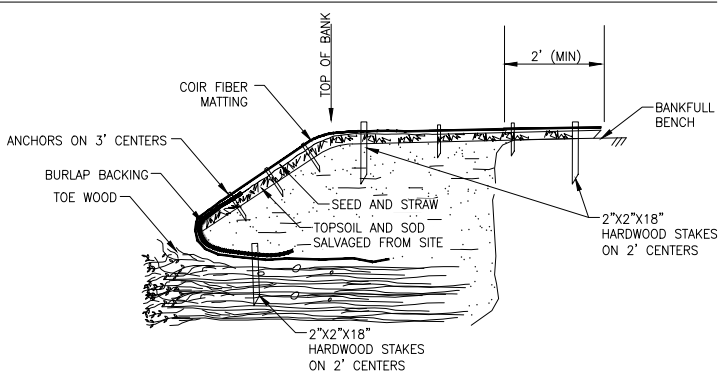
PLAN - SYMBOL

TOE WOOD DIMENSIONS			
LABEL	VALUE	TYPICAL UNIT	DESCRIPTION
X1	12 MIN	IN.	FOOTER LOG DIAMETER
X2	8.0 - 12.0	FT.	FOOTER LOG LENGTH
X3	3.0 - 4.0	FT.	BRUSH TOE WOOD HEIGHT
X4	6.0 - 8.0	FT.	BRUSH TOE WOOD WIDTH
X5	1/2 - 3.0	IN.	WOODY DEBRIS DIAMETER
X6	8.0 - 12.0	FT.	WOODY DEBRIS LENGTH
X7	15 - 20	%	BASE AGGREGATE/ONSITE SOIL (BY VOLUME)

- NOTES:
- FOOTER LOGS OF APPROPRIATE SIZE SHALL CONSIST OF GREEN OR RELATIVELY GREEN CUT LOGS FREE OF ROOT BALLS. ON-SITE SALVAGED MATERIAL IS PREFERRED.
  - WOODY MATERIAL OF APPROPRIATE SIZE CONSISTING OF LOGS, TRUNKS, LIMBS, BRANCHES, AND SMALLER WOODY DEBRIS INCLUDING TOPS OR SLASH. ON-SITE WOODY MATERIAL IS PREFERRED.
  - WOODY DEBRIS SHOULD BE GREEN OR RELATIVELY GREEN AND MAY CONSIST OF HARDWOODS, CONIFERS, OR A COMBINATION OF BOTH.
  - LIVE BRUSH OR OTHER BANK VEGETATION MAY BE INCORPORATED.



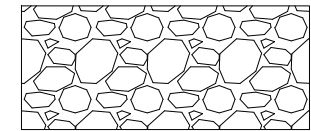
1 TOE WOOD  
C3.01 NTS  
C3.02  
C3.03



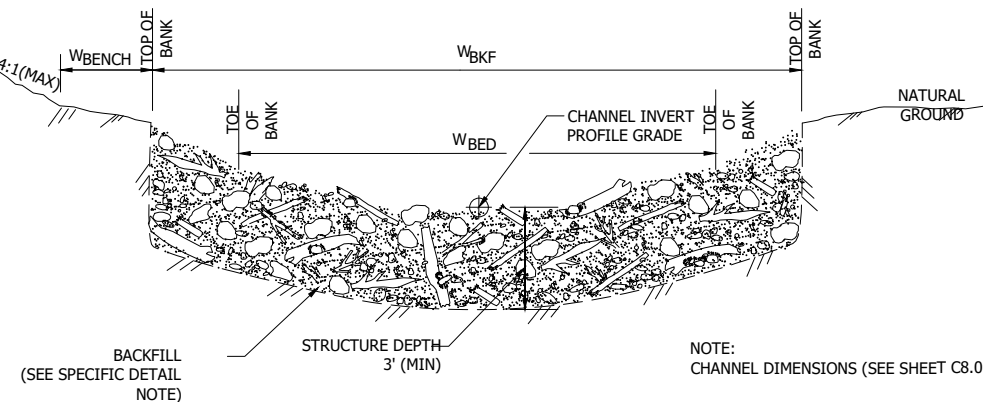
2 BANK PROTECTION - SOIL LIFT  
NTS



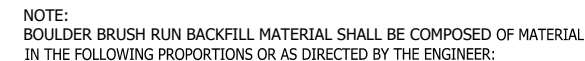
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## RIFFLE PLAN - SYMBOL

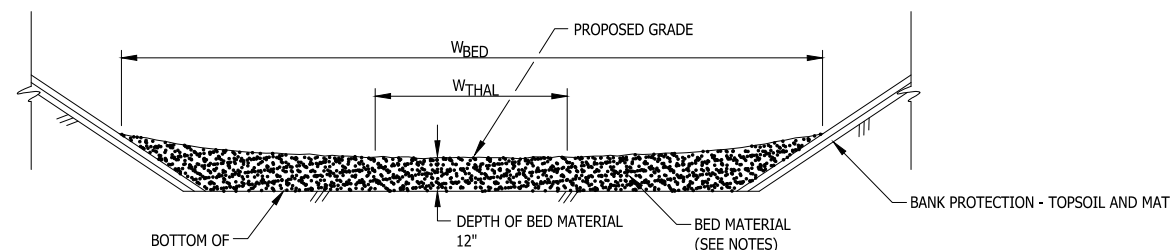


BOULDER BRUSH RUN  
SECTION  
NOT TO SCALE



<u>MATERIAL</u>	<u>COMPOSITION BY VOLUME</u>
BASE AGGREGATE DENSE 3"	30%
12" RIPRAP (WISDOT LIGHT OR ONSITE HARVEST)	30%
15" RIPRAP (WISDOT MEDIUM OR ONSITE HARVEST)	20%
SOIL (ON-SITE)	20%

### BED MATERIAL DETAIL



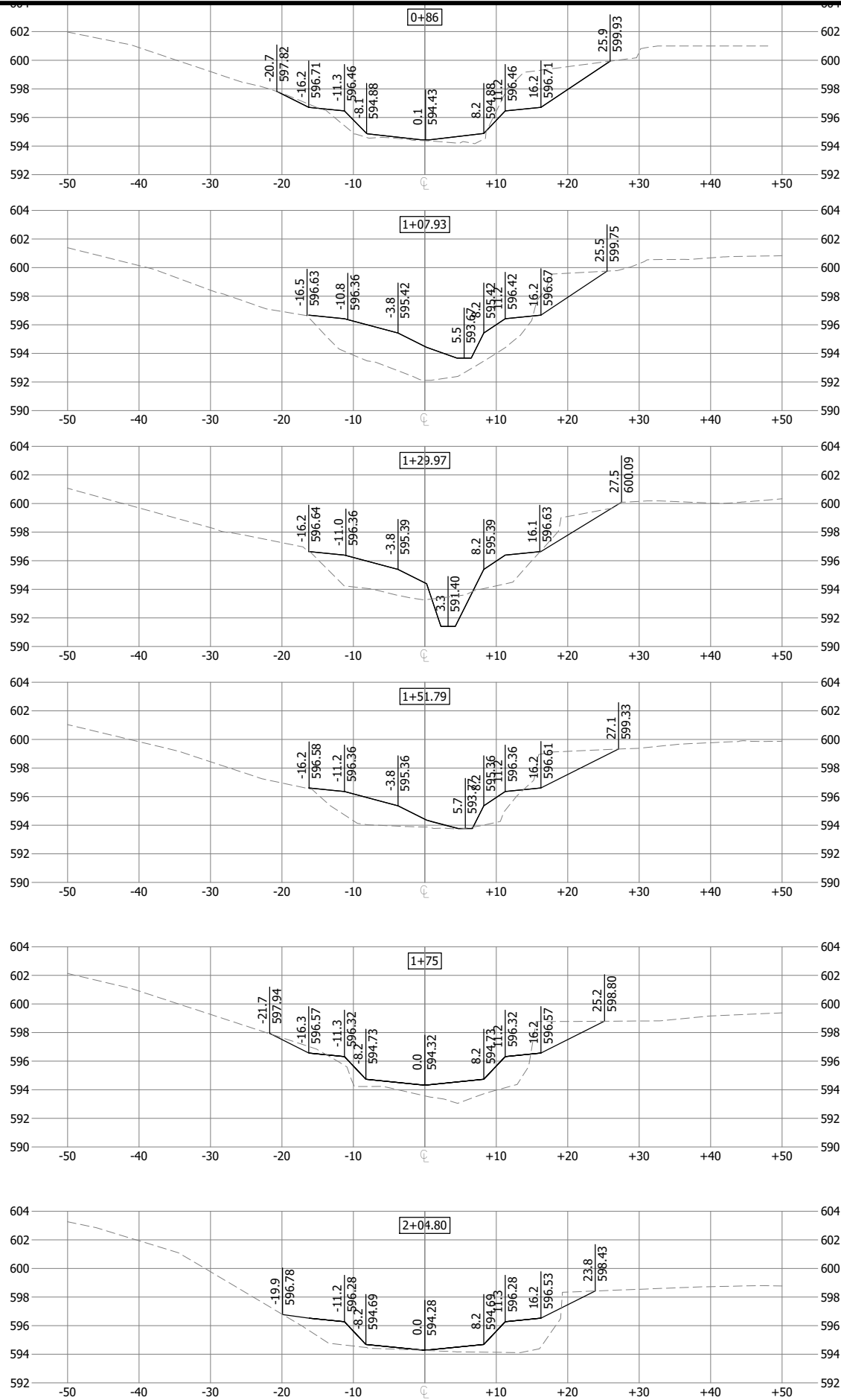
### BED MATERIAL DETAIL

**1** **RIFFLE DETAIL**  
C3.01 NTS  
C3.02  
C3.03



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CROSS SECTIONS - AREA 1

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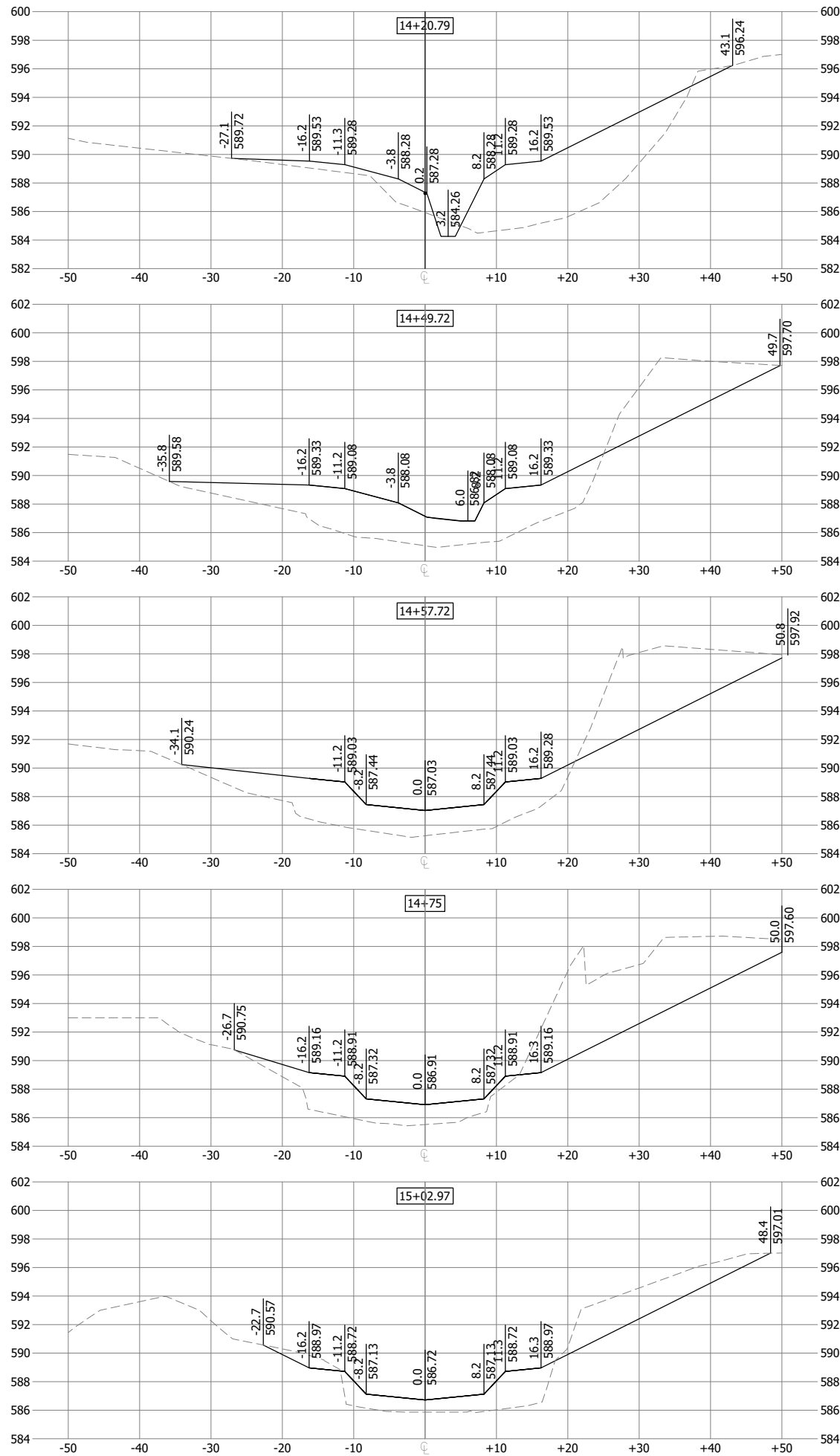
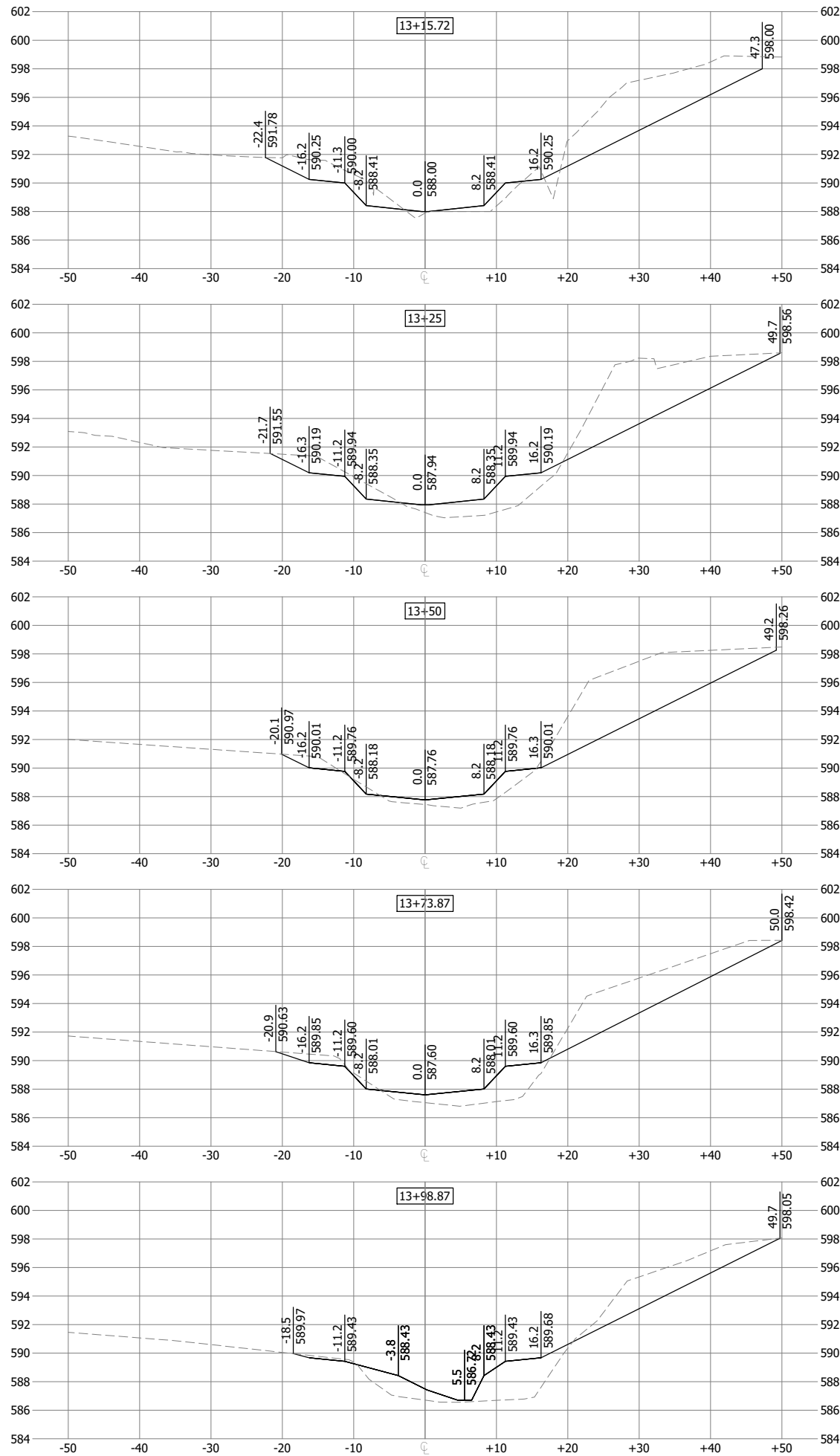
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CHECKED	R.STOKES
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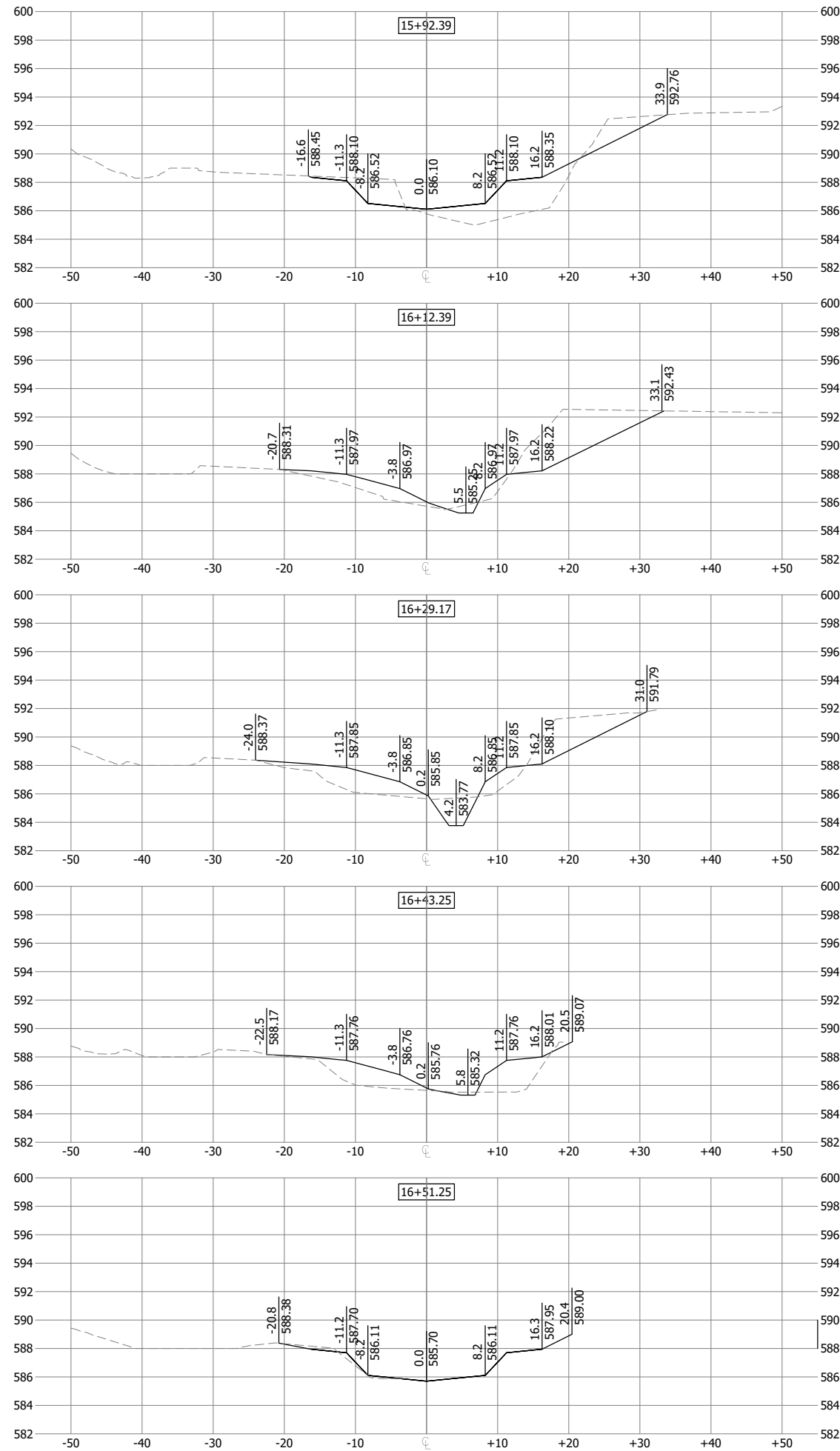
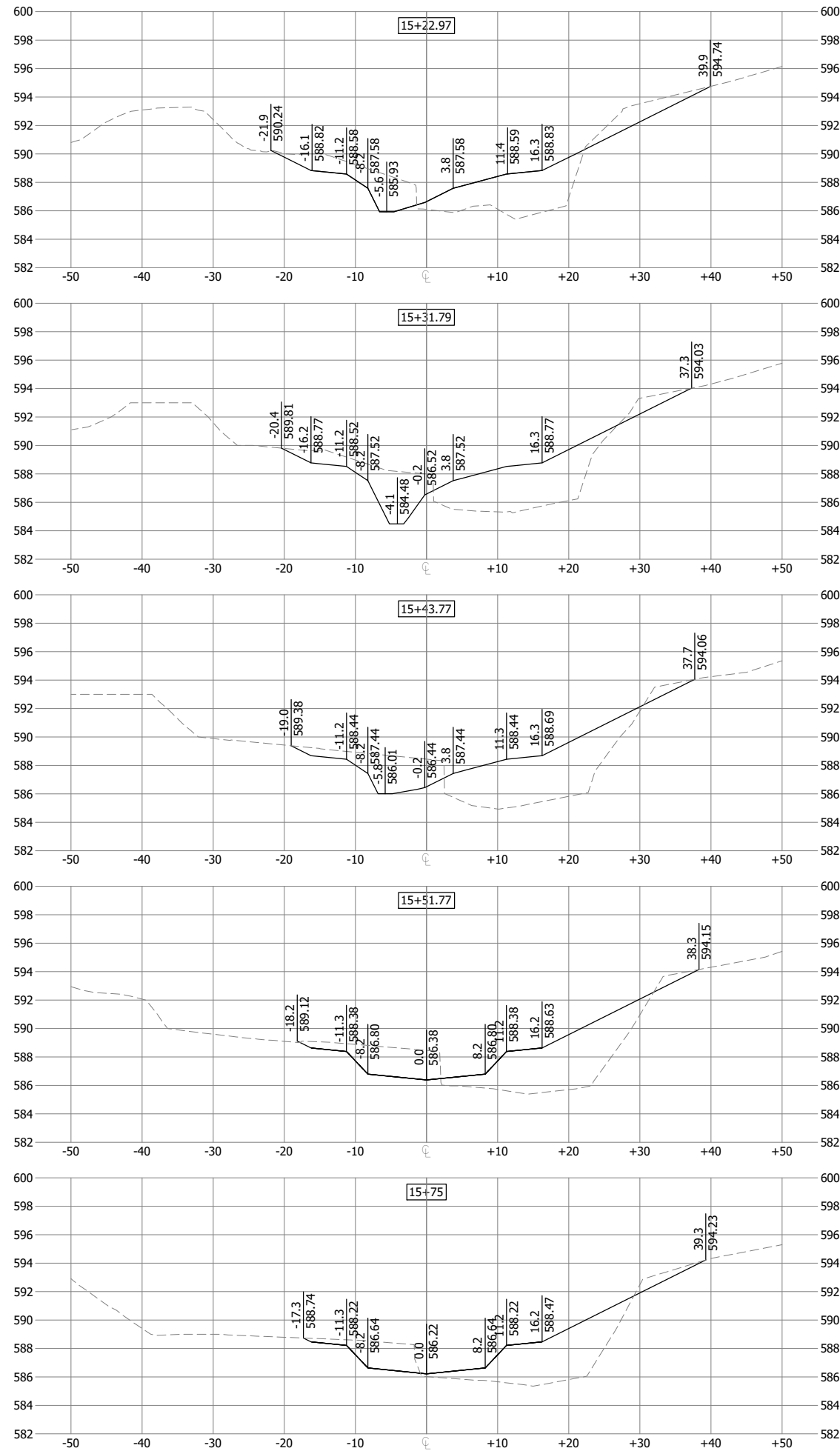
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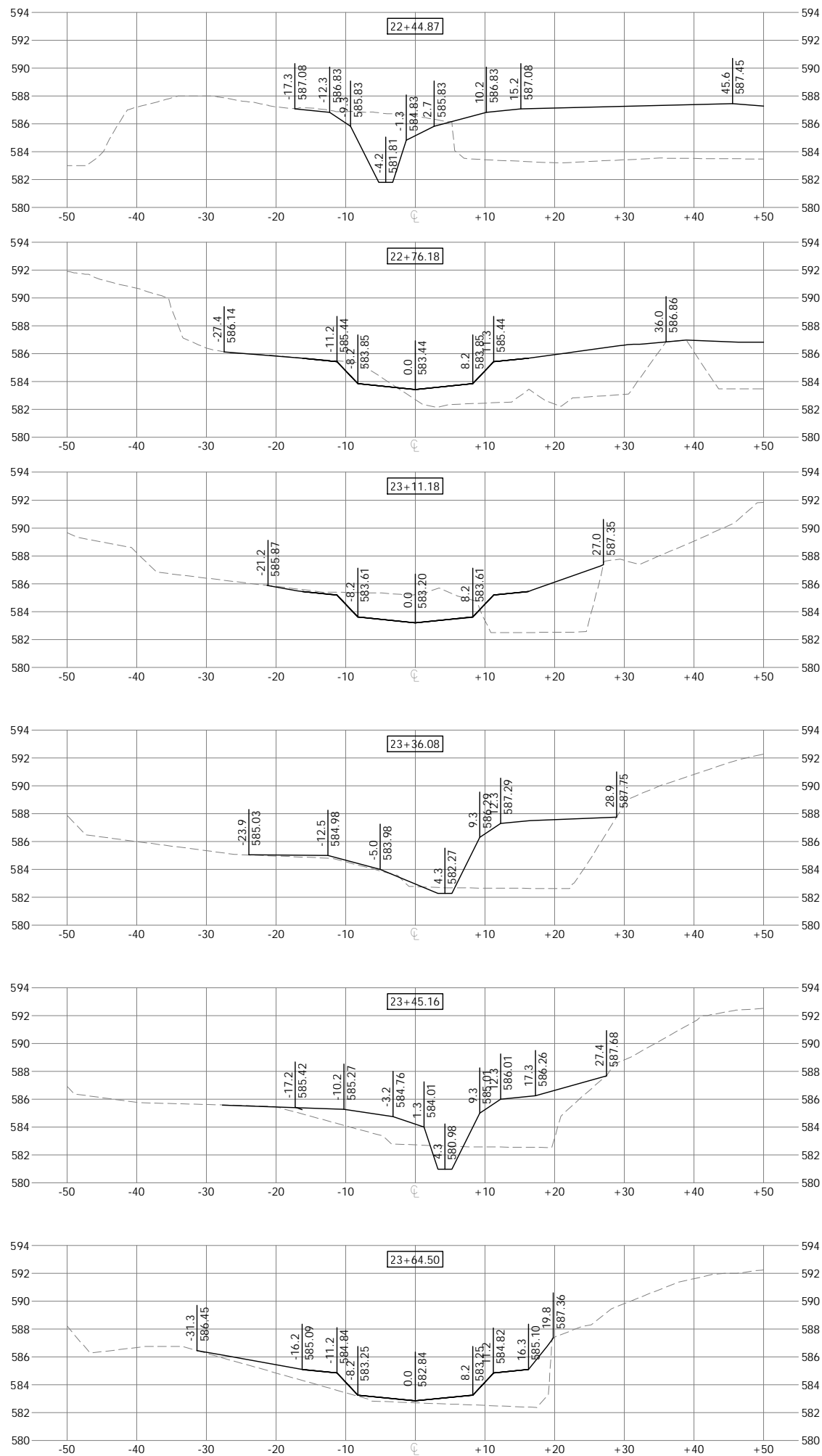
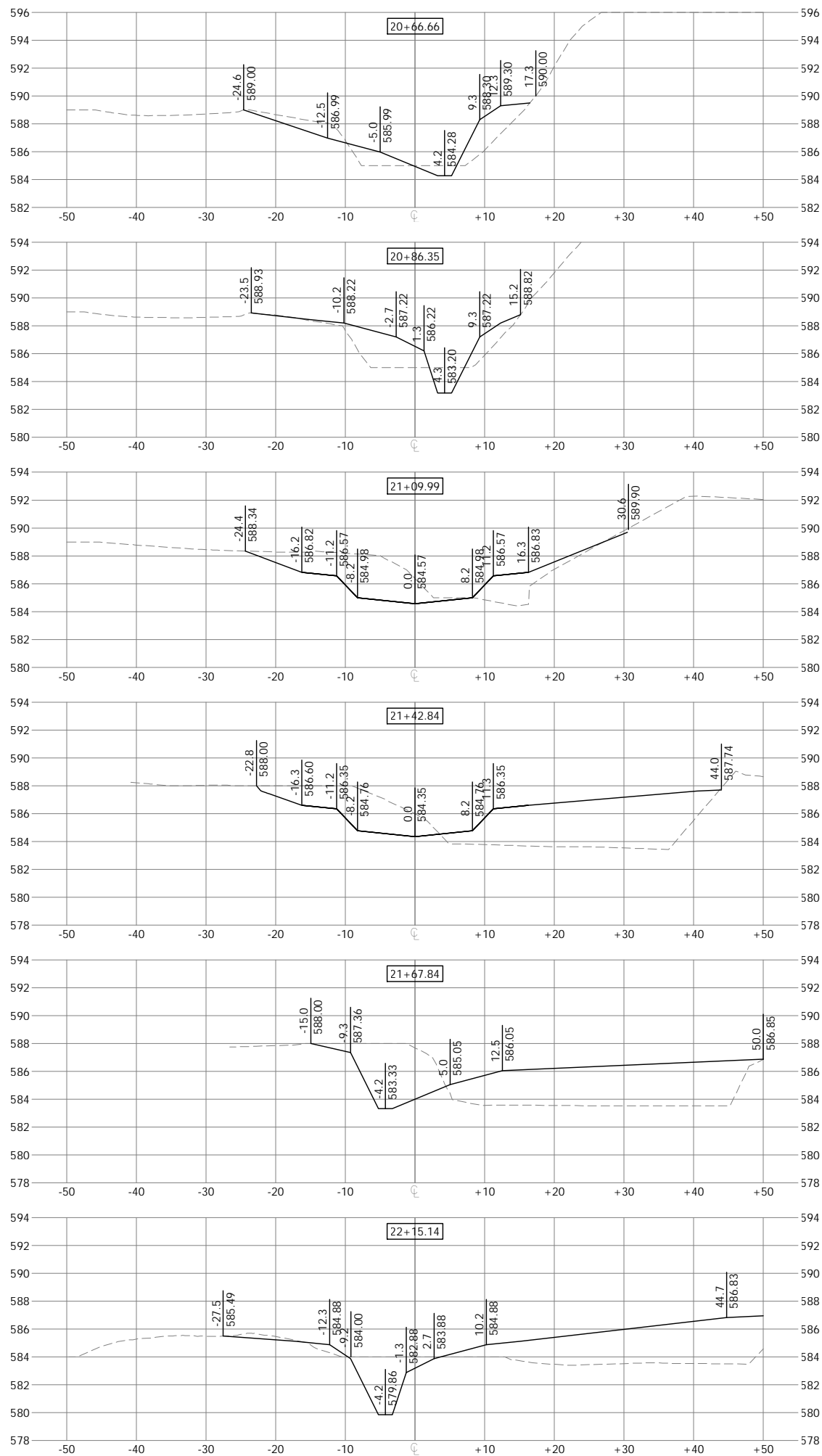
NO.	REVISION	DATE

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C9.03



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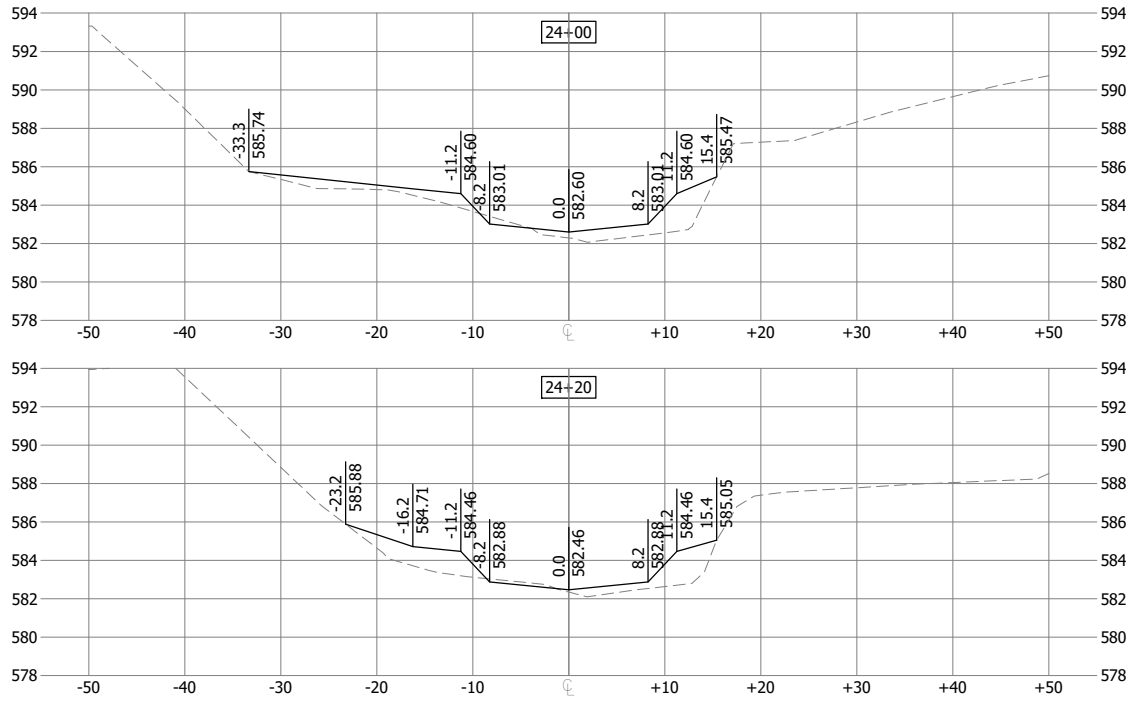
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