

- NTS
NOTES:
1. SURVEY PERFORMED BY PALMER STAFF ON JULY 24 & AUGUST 2, 2023.
 2. VERTICAL CONTROL IS IN METERS (CGVD23). ELEVATIONS HAVE BEEN DERIVED FROM CITY OF OSHAWA BENCHMARK #180 WILSON ROAD NORTH AT HILLCROFT STREET, CUT CROSS TO SOUTHWEST CORNER OF TOP OF BOTTOM STEP, HOUSE #453 WILSON ROAD NORTH, ELEVATION 107.460 m.
 3. HORIZONTAL DATUM IS NAD83 UTM ZONE 17N.
 4. TOPOGRAPHIC DATA OUTSIDE SITE SURVEY AREA IS DERIVED FROM ONTARIO LIDAR-DERIVED DIGITAL TERRAIN MODEL (LID, 2023), AND ADJUSTED FROM CGVD2013 TO CGVD23.
 5. CONTOUR INTERVAL IS 0.25 METERS.

- LEGEND:
- X PROPOSED TREE REMOVAL

- GENERAL NOTES**
1. THIS SET OF DRAWINGS TO BE READ IN CONJUNCTION WITH ACCOMPANYING SPECIFICATIONS.
 2. ALL DIMENSIONS ARE IN METRIC UNITS AND REFERENCED TO GEODETIC DATUM, UNLESS OTHERWISE SHOWN.
 3. ALL DIMENSIONS TO BE CHECKED AND VERIFIED ON SITE BY THE CONTRACTOR AND ANY DISCREPANCIES REPORTED TO THE SITE ENGINEER.
 4. SURVEY PERFORMED BY PALMER STAFF ON JULY 24 & AUGUST 2, 2023.
 5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LAYOUT AND SURVEY CONTROL DURING CONSTRUCTION. THIS INCLUDES THE EXACT ROUTE FOR SITE ACCESS.
 6. THE CONTRACTOR IS RESPONSIBLE FOR EXACTLY LOCATING ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION. THE CONTRACTOR IS TO ENSURE ALL EXISTING INFRASTRUCTURE (IF APPLICABLE) IS PROTECTED FROM DAMAGES DURING CONSTRUCTION AND WILL BE HELD RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH ANY DAMAGES INCURRED DUE TO CONSTRUCTION.
 7. THE CONTRACTOR SHALL DELINEATE THE REQUIRED WORKING AREA ON-SITE PRIOR TO THE START OF WORK AND SHALL CONFINE OPERATIONS WITHIN THE DEFINED AREA.
 8. WORKING AREA(S), ACCESS REQUIREMENTS, AND TEMPORARY MATERIAL STORAGE AREA(S) ARE TO BE MAINTAINED IN GOOD REPAIR BY THE CONTRACTOR AT ALL TIMES. AREAS AFFECTED BY THE CONTRACTORS ACTIVITIES ARE TO BE REINSTATED TO EXISTING CONDITIONS OR BETTER.
 9. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING EROSION AND SEDIMENT CONTROLS AS SHOWN IN DRAWING ESC IN GOOD REPAIR FOR THE DURATION OF CONSTRUCTION.
 10. EQUIPMENT REFUELING AND MAINTENANCE TO BE COMPLETED ONLY IN DESIGNATED AREA.
 11. ALL IN-STREAM WORKS ARE TO BE COMPLETED WITHIN THE COLD-WATER TIMING WINDOW FOR CONSTRUCTION OF JULY 1 TO SEPTEMBER 15, UNLESS OTHERWISE NOTED OR APPROVED WITH THE ASSOCIATED PERMIT(S); NO EQUIPMENT SHALL BE IN AN ACTIVE FLOWING WATERCOURSE. ALL MACHINERY WORK SHOULD BE COMPLETED FROM ABOVE THE TOP OF BANK OR TEMPORARY ACCESS ROAD.
 12. ALL TREES TO BE REMOVED FOR PROPOSED WORKS AND SITE ACCESS ARE TO BE IDENTIFIED PRIOR TO CONSTRUCTION AND CONFIRMED WITH ENGINEER ON-SITE. TREE REMOVALS WILL ABIDE BY THE MIGRATORY BIRD WINDOW. A BREEDING BIRD SURVEY IS NEEDED PRIOR TO TREE REMOVALS TO CONDUCT ANY REMOVALS AS REQUIRED WITHIN THE BREEDING BIRD WINDOW BETWEEN APRIL 1 AND AUGUST 1. SMALL TREES MAY BE SALVAGED AND REPLANTED ON SITE.
 13. DISTURBANCE TO THE EXISTING VEGETATED FLOOD PLAIN AREA AND OR WOOD LOT SHOULD BE MINIMIZED. THE LIMITS OF DISTURBANCE ARE TO BE IDENTIFIED AND CLEARLY MARKED PRIOR TO CONSTRUCTION.
 14. THE CONTRACTOR IS TO PROVIDE THE CLOCA, THE CITY OF OSHAWA OR ANY PRIVATE/PUBLIC LAND OWNER WITHIN THE BOUNDARIES OF THE WORKS WITH 48 HOURS ADVANCE NOTICE PRIOR TO INITIATION OF CONSTRUCTION.
 15. CONSTRUCTION ACTIVITIES SHOULD TAKE PLACE BETWEEN 7AM AND 7PM MONDAY TO SATURDAY AND FOLLOW THE CITY'S BYLAWS REGARDING NOISE AND VIBRATION.
 16. ALL GENERAL BACKFILL TO BE OF APPROVED MATERIAL AND COMPACTED TO A MINIMUM 95% PROCTOR DENSITY UNLESS OTHERWISE STATED.
 17. THE SITE ACCESS ROUTE AND CONSTRUCTION SITE ARE TO BE RESTORED TO ORIGINAL CONDITIONS OR BETTER. ALL EXPOSED SOIL AREAS ARE TO BE COVERED WITH NATIVE SEED MIX, SEE RESTORATION PLAN ON SHEET 04, UNLESS OTHERWISE NOTED.
 18. THE CONTRACTOR IS RESPONSIBLE FOR REMOVAL AND LEGAL DISPOSAL OF ALL DEBRIS AND EXCESS MATERIAL(S) AS PER OPSS180.
 19. CONSTRUCTION TO PROCEED AS PER GENERAL CONSTRUCTION PLAN SHOWN ON THE EROSION AND SEDIMENT CONTROL PLAN, UNLESS OTHERWISE APPROVED BY SITE ENGINEER.
 20. IN CASE OF A SPILL, THE CONTRACTOR IS TO NOTIFY THE MOE SPILL PHONE NUMBER AT 416-325-3000 OR 1-800-268-6060.
 21. CONTRACTOR IS TO ENSURE ALL TOE PROTECTION WORKS ARE ADEQUATELY KEYED IN AND EMBEDDED INTO THE BANK TO MINIMIZE THE RISK OF BEING OUTFLANKED OR UNDERMINED.

TREE REMOVALS

TAG	BOTANICAL NAME	COMMON NAME	EFFECTIVE DBH (cm)	CONDITION	COMPENSATION RATIO
250	<i>Juglans nigra</i>	Black Walnut	17	Good	1:1
TOTAL # OF TREES TO REMOVE	1		AVG DBH:	17	TOTAL # OF TREES TO BE COMPENSATED: 1



DATE	REVISION	BY
2023-10-13	DRAFT VERSION 1	SM

DRAFT

PROJECT: **OSHAWA CREEK - SITE 3 PRELIMINARY DESIGN**

TITLE: **GENERAL PLAN, REMOVALS AND NOTES**

PROJECT NO:	1510209	DATE:	2023-10-13
DESIGN BY:	SM	DRAWN BY:	CV
		APPROVED BY:	MO
DRAWING NO:	GP	SHEET NO:	01

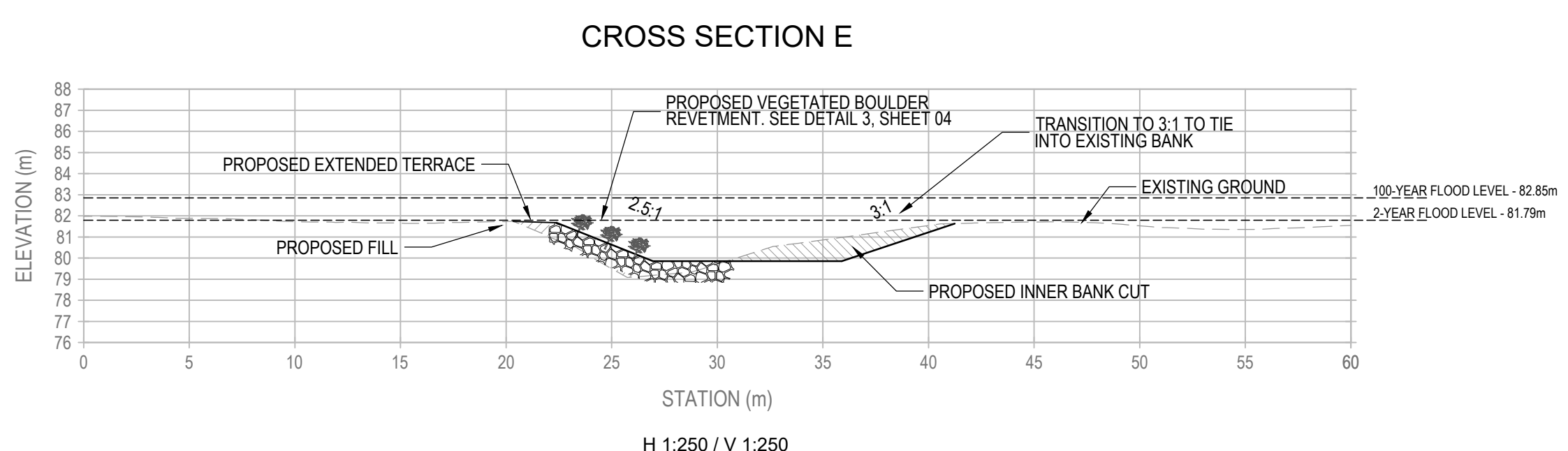
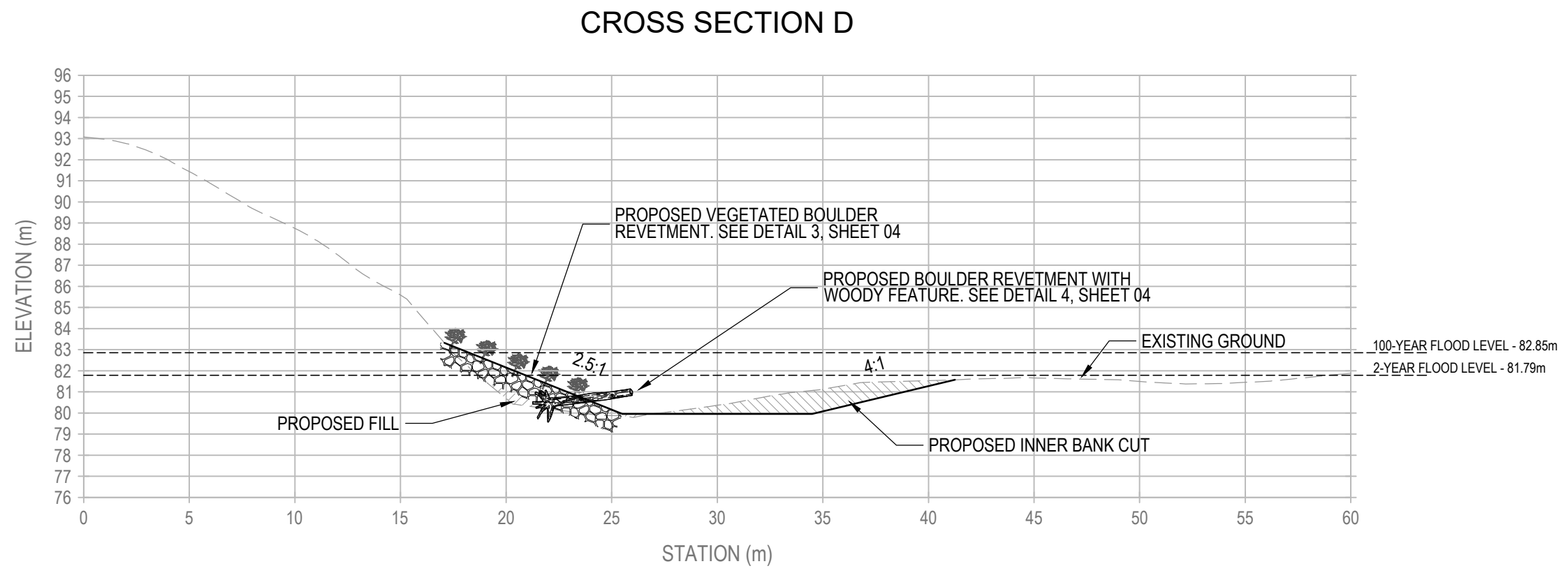
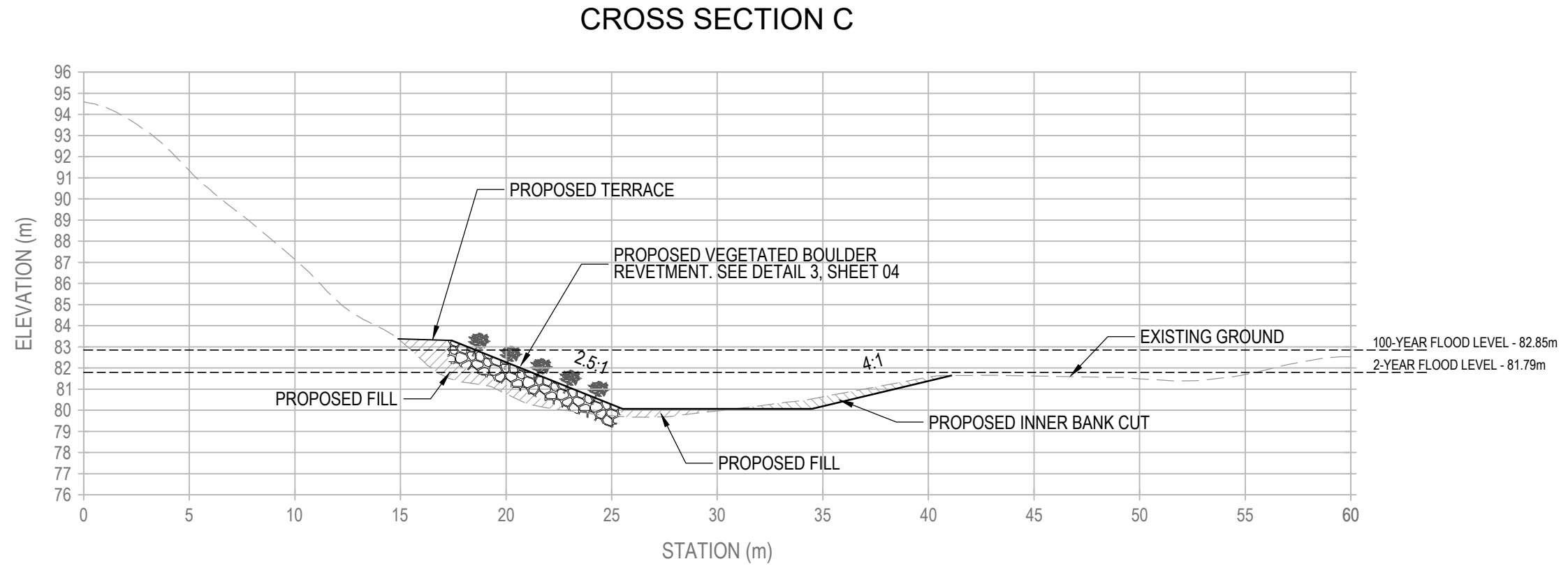
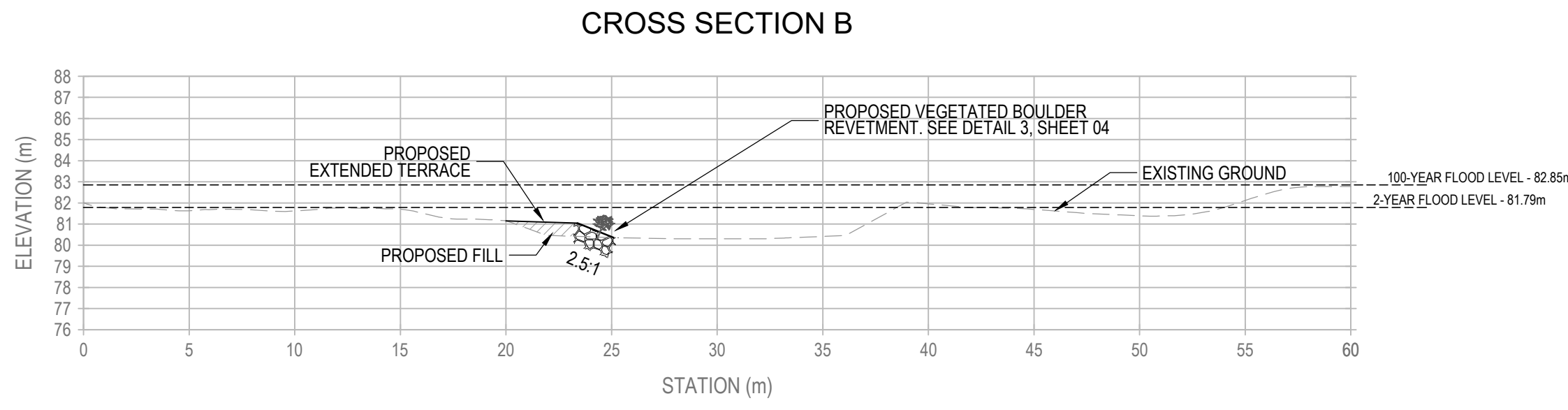
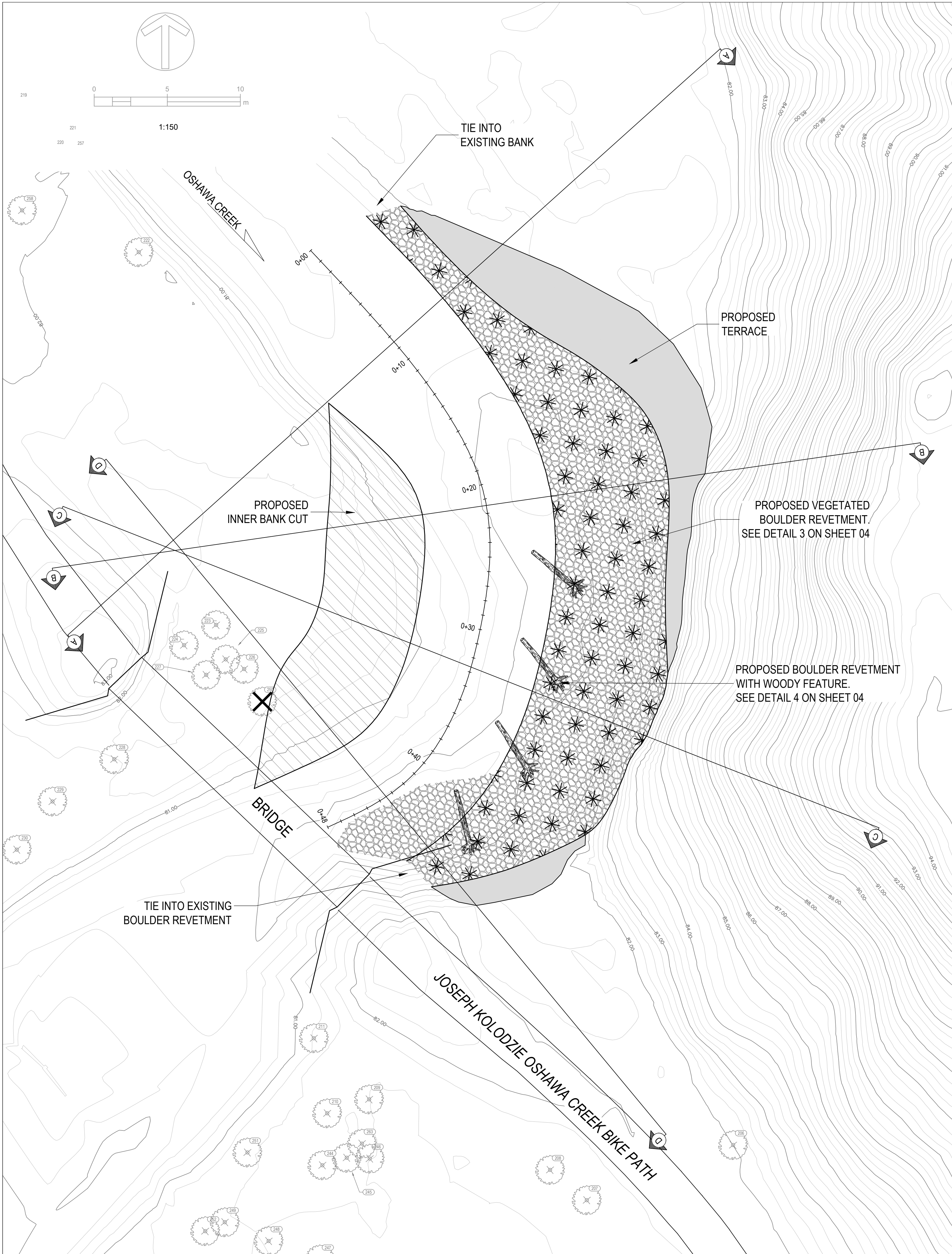


TABLE 1. CHANNEL BANK STONE

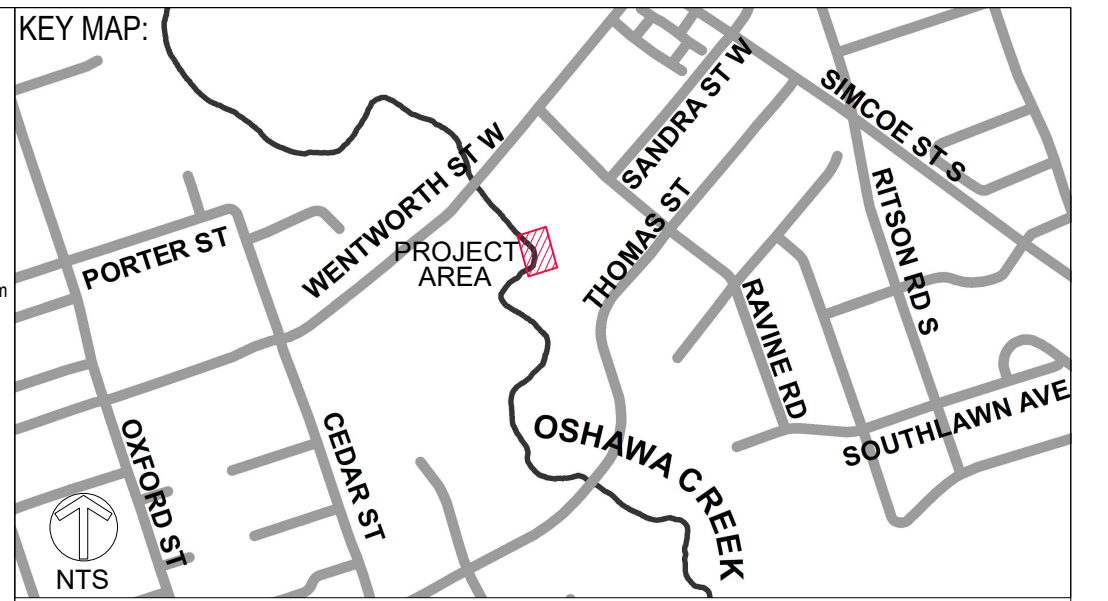
% FINER	STONE SIZE (mm)	STONE SIZE (in)
D ₁₀₀	750	24
D ₈₅	600	20
D ₇₀	500	16
D ₅₀	400	10
D ₂₅	250	6

STONE TYPE SHALL BE ANGULAR RIVERSTONE AND PLACED IN LAYER 1000mm THICK

TOTAL VOLUME: 330 m³

TABLE 1. CUT/FILL VOLUMES

CUT VOLUME	650 m ³
FILL VOLUME	620 m ³
EXCESS SOIL VOLUME	N/A



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- LEGEND:**
- PROPOSED CUT
 - PROPOSED VEGETATED BOULDER REVETMENT
 - PROPOSED STONE
 - PROPOSED TERRACE
 - PROPOSED LARGE WOODY DEBRIS
 - PROPOSED TREE REMOVAL

CLIENT:

PREPARED BY:

DATE	REVISION	BY
2023-10-31	DRAFT REVISION 1	SM

DRAFT

PROJECT:

OSHAWA CREEK - SITE 3 PRELIMINARY DESIGN

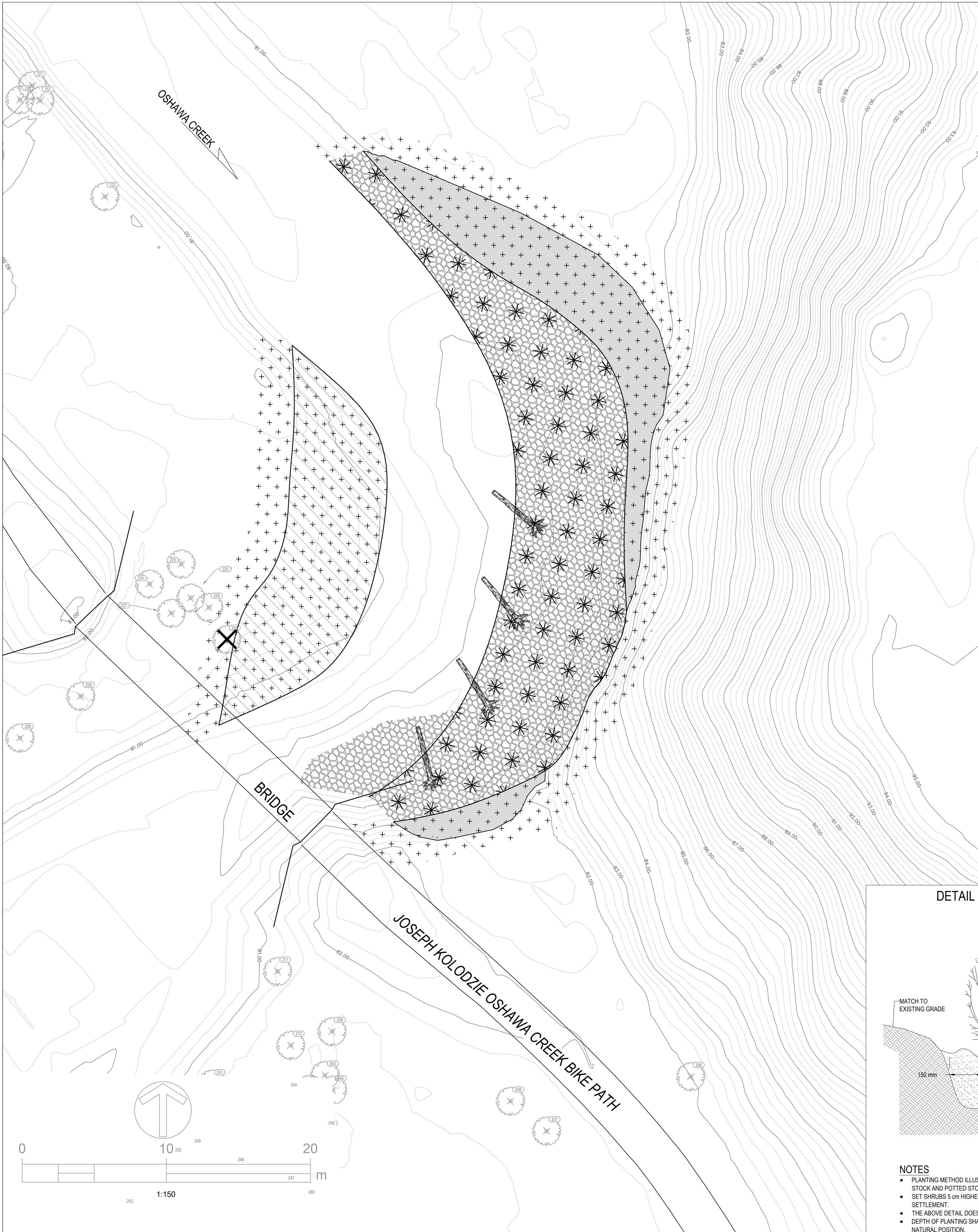
TITLE:

SITE PLAN AND PROFILE

PROJECT NO: 1510209 **DATE:** 2023-10-13

DESIGN BY: SM **DRAWN BY:** CV **APPROVED BY:** MO

DRAWING NO: SP **SHEET NO:** 02

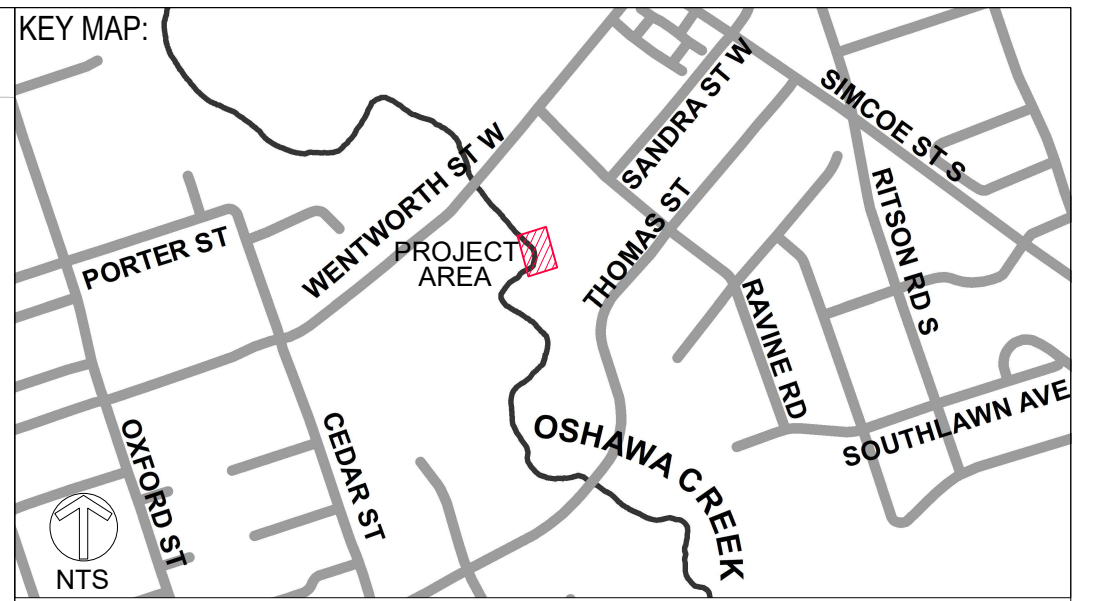


RESTORATION NOTES:

1. ANY IMPACT TO CITY OWNED TREES INCLUDING ANY DISRUPTION TO ROOTS, BEYOND THE TREES THAT HAVE BEEN IDENTIFIED FOR REMOVAL ON THE DRAWINGS, SHALL BE REVIEWED AND APPROVED ON SITE BY THE CITY'S FORESTRY SUPERVISOR. CONTRACTOR TO CONTACT THE CONTRACT ADMINISTRATOR TO MAKE ALL NECESSARY ARRANGEMENTS WITH THE CITY'S FORESTRY SUPERVISOR.
2. WOODY DEBRIS: ALL WOODY DEBRIS FROM REMOVED TREES DUE TO SITE DISTURBANCE SHOULD BE KEPT ON-SITE. SOME TREE TRUNKS CAN BE CUT INTO SMALLER SEGMENTS AND DISTRIBUTED THROUGHOUT THE SITE, OUTSIDE THE MAIN CHANNEL, AFTER THE COMPLETION OF RESTORATION PLANTINGS. THE REMAINING MATERIAL SHOULD BE MULCHED AND APPLIED AROUND THE BASED OF PLANTED TREES.
3. DO NOT STOCKPILE TOPSOIL CONSTRUCTION MATERIALS OR DEBRIS WITHIN THE DRIP LINE OF EXISTING TREES TO REMAIN ON SITE. CONTRACTOR TO PROTECT EXISTING TREES TO REMAIN. THE ENGINEER MAY DIRECT THE CONTRACTOR TO MARK AND FENCE PARTICULAR EXISTING TREES PRIOR TO STOCKPILING MATERIALS.
4. TREE REMOVAL - NO TREES SHALL BE REMOVED WITHOUT PRIOR APPROVAL FROM THE PROJECT COORDINATOR. ALL TREE REMOVALS TO BE COMPLETED IN ACCORDANCE WITH ACCEPTED FORESTRY PRACTICES AND WITHOUT IMPACT TO EXISTING TREES/VEGETATION TO REMAIN ON SITE.
5. ALL PLANT MATERIAL MUST BE GUARANTEED: PLANTINGS SHOULD BE DOCUMENTED AND INSPECTED IN THE FIRST YEAR, FOLLOWED BY AN ASSESSMENT OF SURVIVORSHIP IN THE FALL OF THE SECOND YEAR OF THE MONITORING PROGRAM. THERE SHOULD BE LESS THAN 20% WOODY VEGETATION MORTALITY BY THE FALL OF THE SECOND YEAR. IF GREATER MORTALITY IS OBSERVED, SUPPLEMENTAL PLANTINGS WILL BE REQUIRED.
6. TENDING: THE RESTORATION PLANTINGS WILL REQUIRE REGULAR WATERING TO FACILITATE THE ESTABLISHMENT OF YOUNG TREES, WHICH ARE TYPICALLY HIGHLY SUSCEPTIBLE TO WATER STRESS. AT A MINIMUM, WATERING SHOULD OCCUR WHEN TREES SHOW SIGNS OF STRESS AND DURING PERIODS OF NATURAL DROUGHT CONDITIONS (E.G. IF THERE IS LESS THAN 25mm OF RAIN OVER A 30-DAY PERIOD DURING LATE SPRING TO THE END OF SUMMER).
7. ALL EXPOSED SOILS OR AREAS IMPACTED BY CONSTRUCTION ARE TO HAVE A MINIMUM 200mm DEPTH OF TOPSOIL AND TERRASEED WITH A NATIVE SEED MIX (SEE SEED MIX TABLE) AND COVERED WITH BIODEGRADABLE EROSION CONTROL MATTING - TERRAFIX COIR MAT 400, SEE DETAIL 5 ON SHEET 04.
8. HERBACEOUS SPECIES: RIPARIAN SEED MIX APPLIED AT 25 kg/ha AT DEPTH OF 5cm WITH A DRY SEED COVER (NURSE) CROP APPLIED AT 15 kg/ha AT DEPTH OF 5cm FOR THE WORK AREA, EXCLUDING VEGETATED STONE REVETMENT. TURF SEED MIX TO APPLIED AT A 25 kg/ha FOR THE ACCESS ROUTE AREA.
9. TIMING: PLANTING AND SEEDING SHOULD BE COMPLETED IN THE SPRING OR FALL. THE SPRING SEASON PLANTING WINDOW IS APRIL TO MID-MAY AND THE FALL SEASON WINDOW IS MID-SEPTEMBER TO LATE OCTOBER. SEEDING SHOULD BE COMPLETED IMMEDIATELY AFTER THE PLANTING OF WOODY VEGETATION BUT NOT DURING DROUGHT-PRONE SUMMER MONTHS.
10. THE SITE WILL BE MONITORED MONTHLY FOR A PERIOD OF 12 MONTHS AFTER COMPLETION OF THE WORKS AND YEARLY OR AFTER MAJOR STORM EVENTS.
11. WOODY SPECIES SHOULD BE INTERSPERSED, WITH A SPACING OF 1 POT PER m² FOR POTTED STOCK, 1 SHRUB PER m² AND 1 TREE PER 3m² WITHIN EACH PLANTING AREA.

RESTORATION PLANTING LIST			
TREES - PLANTED AT A MINIMUM OF 3 METRES ON CENTRE			
SCIENTIFIC NAME	COMMON NAME	QUANTITY	SIZE
Jn	<i>Juglans nigra</i>	1	50 mm caliper tree
POTTED STOCK - PLANTED AT 1 POT PER SQUARE METRE (USED IN VEGETATED STONE REVETMENT)			
SCIENTIFIC NAME	COMMON NAME	QUANTITY	SIZE
Sd	<i>Salix discolor</i>	83	Container-grown shrubs from 0.4 to 1 m in height
Se	<i>Salix exiqua</i>	83	Container-grown shrubs from 0.4 to 1 m in height
Cs	<i>Cornus sericea</i>	83	Container-grown shrubs from 0.4 to 1 m in height
Ra	<i>Ribes americanum</i>	83	Container-grown shrubs from 0.4 to 1 m in height

SEED MIX TABLE (RIPARIAN)		
TERRASEED APPLICATION RATE 25 kg/ha at depth of 5 cm		
QTY (%)	SCIENTIFIC NAME	COMMON NAME
10%	<i>Rudbeckia hirta</i>	Black Eyed Susan
1%	<i>Anemone canadensis</i>	Canada Anemone
1%	<i>Symphoricarum puniceum</i>	Swamp Aster
1%	<i>Symphoricarum novae-angliae</i>	New England Aster
1%	<i>Monarda fistulosa</i>	Wild Bergamot
25%	<i>Oenothera biennis</i>	Evening Primrose
15%	<i>Carex vulpinoidea</i>	Fox Sedge
2%	<i>Asclepias syriaca</i>	Common Milkweed
2%	<i>Solidago canadensis</i>	Canada Goldenrod
1%	<i>Clematis virginiana</i>	Virgins Bower
1%	<i>Euthamia graminifolia</i>	Grass-leaved Goldenrod
40%	<i>Elymus riparius</i>	Riverbank Wild Rye



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 - PROPOSED RIPARIAN SEED MIX
 - PROPOSED TREE REMOVAL



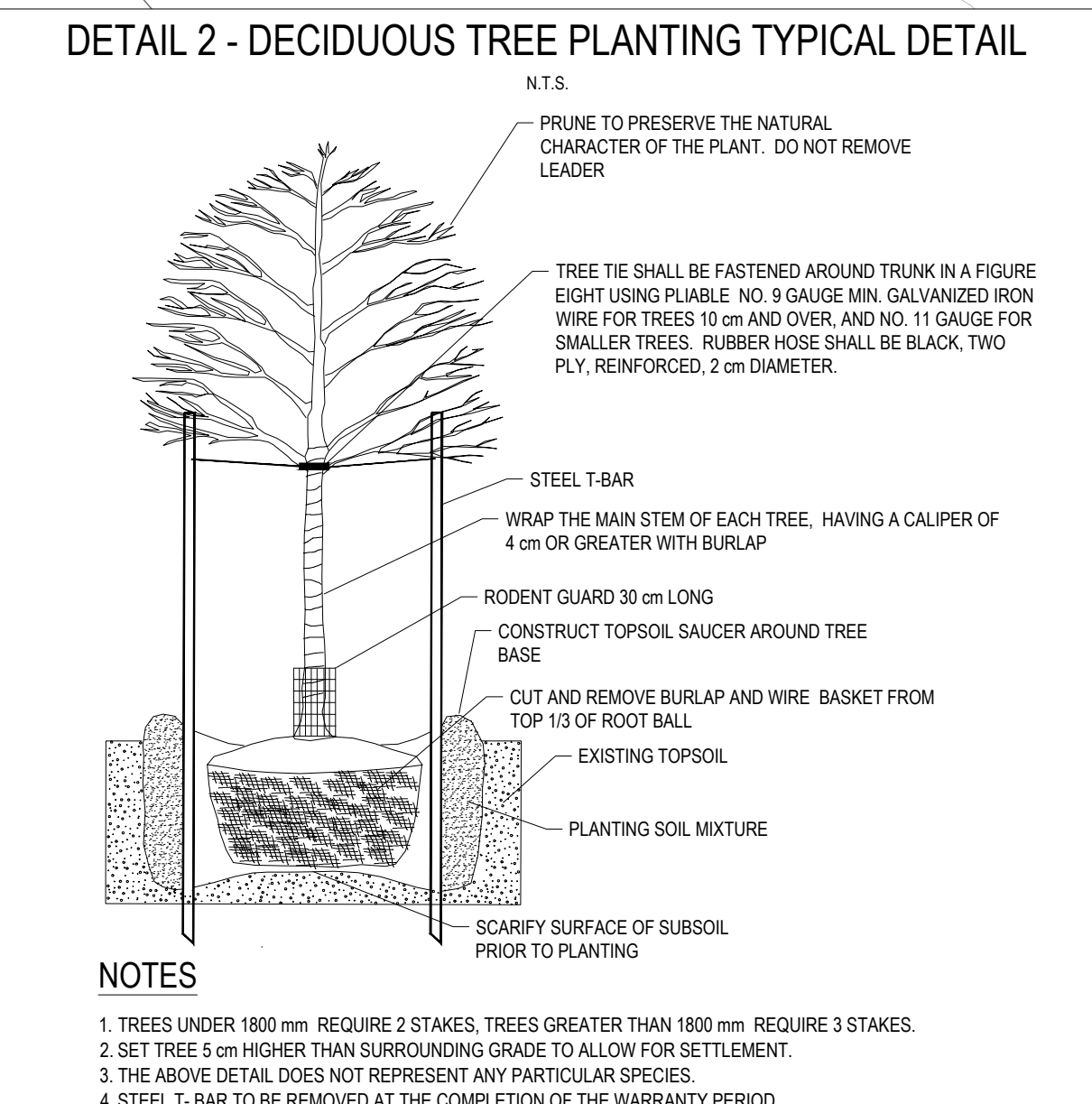
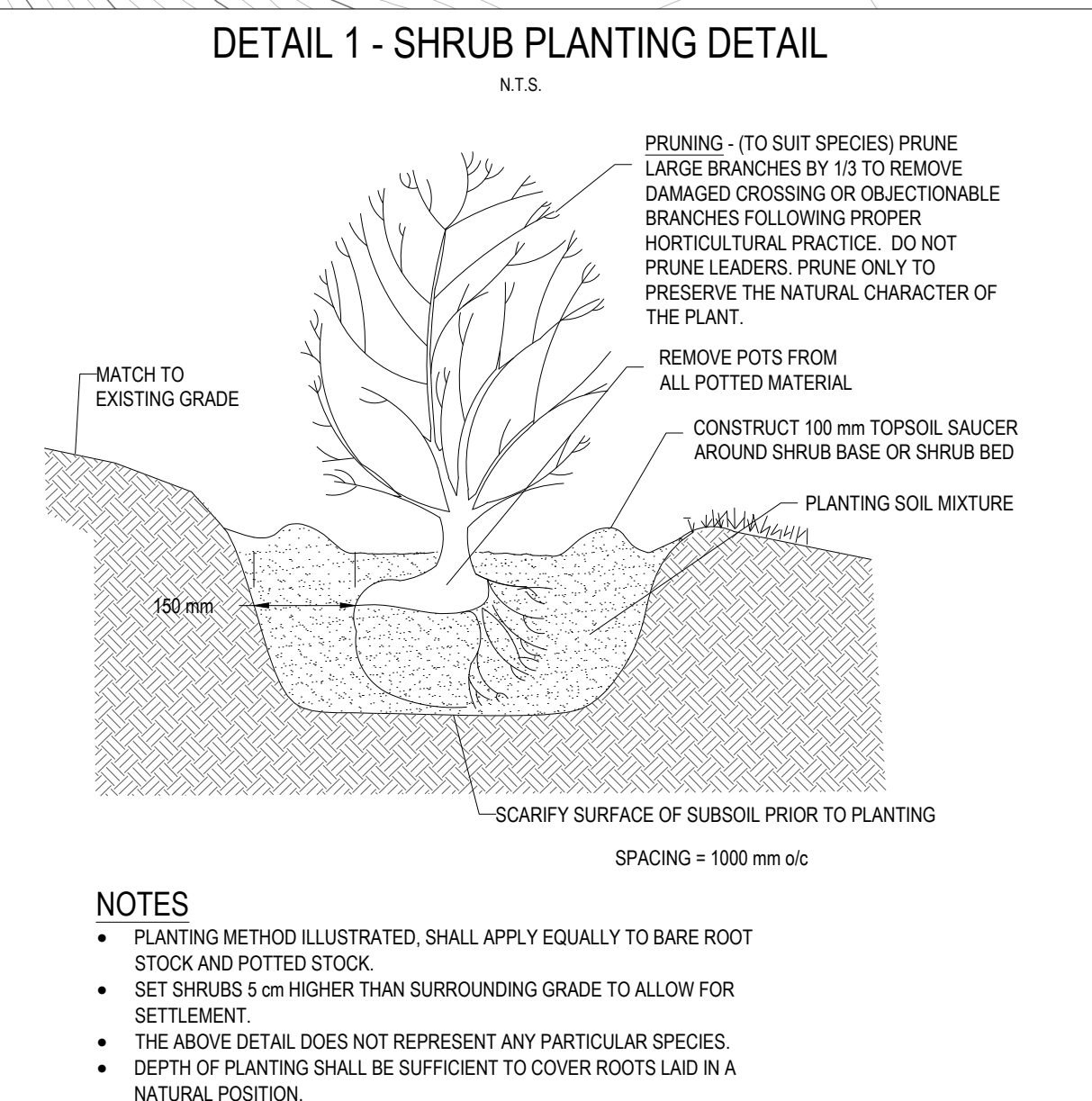
DATE	REVISION	BY
2023-10-13	DRAFT REVISION 1	SM

DRAFT

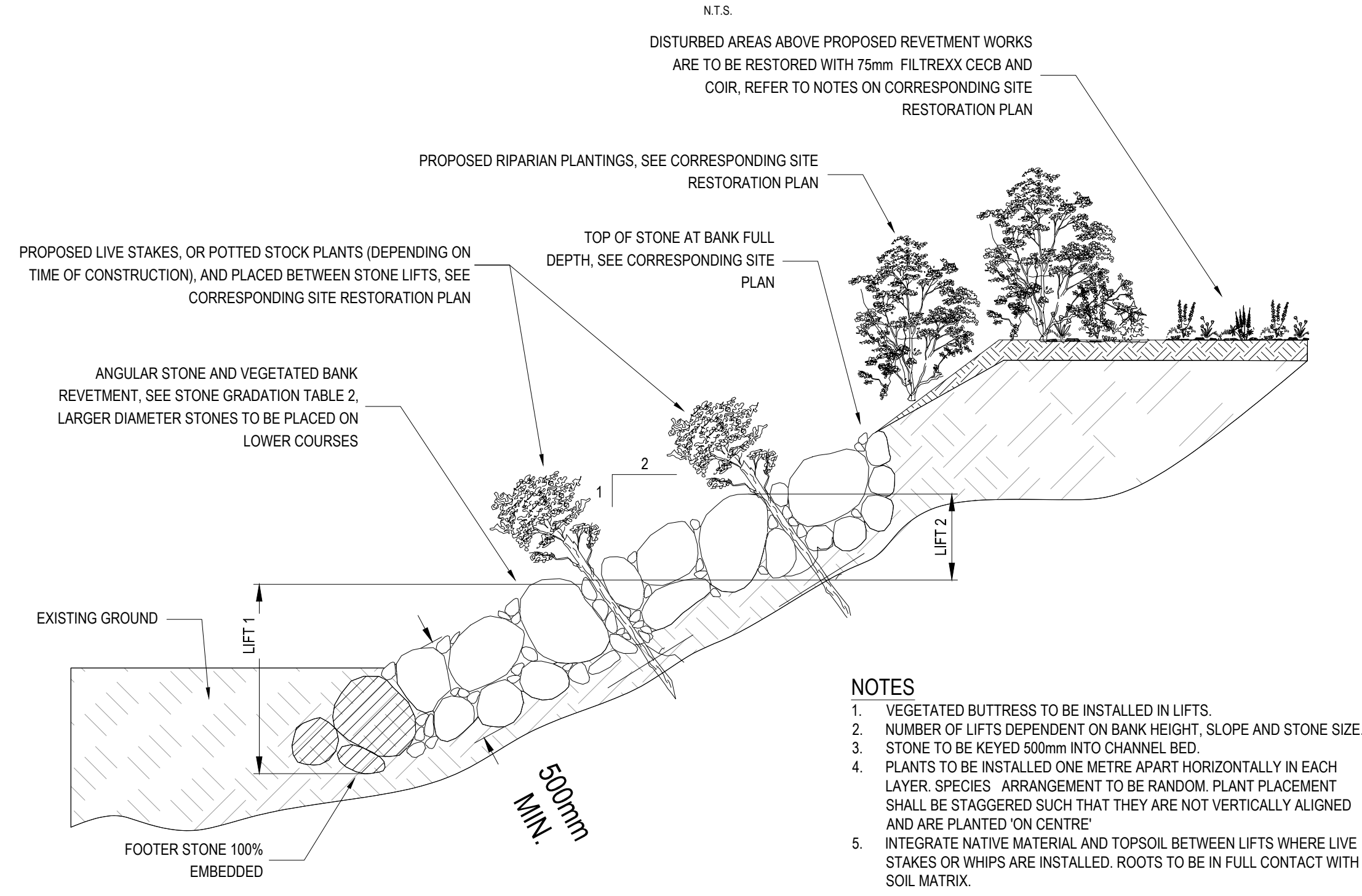
PROJECT: **OSHTAWA CREEK - SITE 3 PRELIMINARY DESIGN**

TITLE: **SITE RESTORATION PLAN**

PROJECT NO:	1510209	DATE:	2023-10-13
DESIGN BY:	SM	DRAWN BY:	CV
		APPROVED BY:	MO
DRAWING NO:	RP	SHEET NO:	03

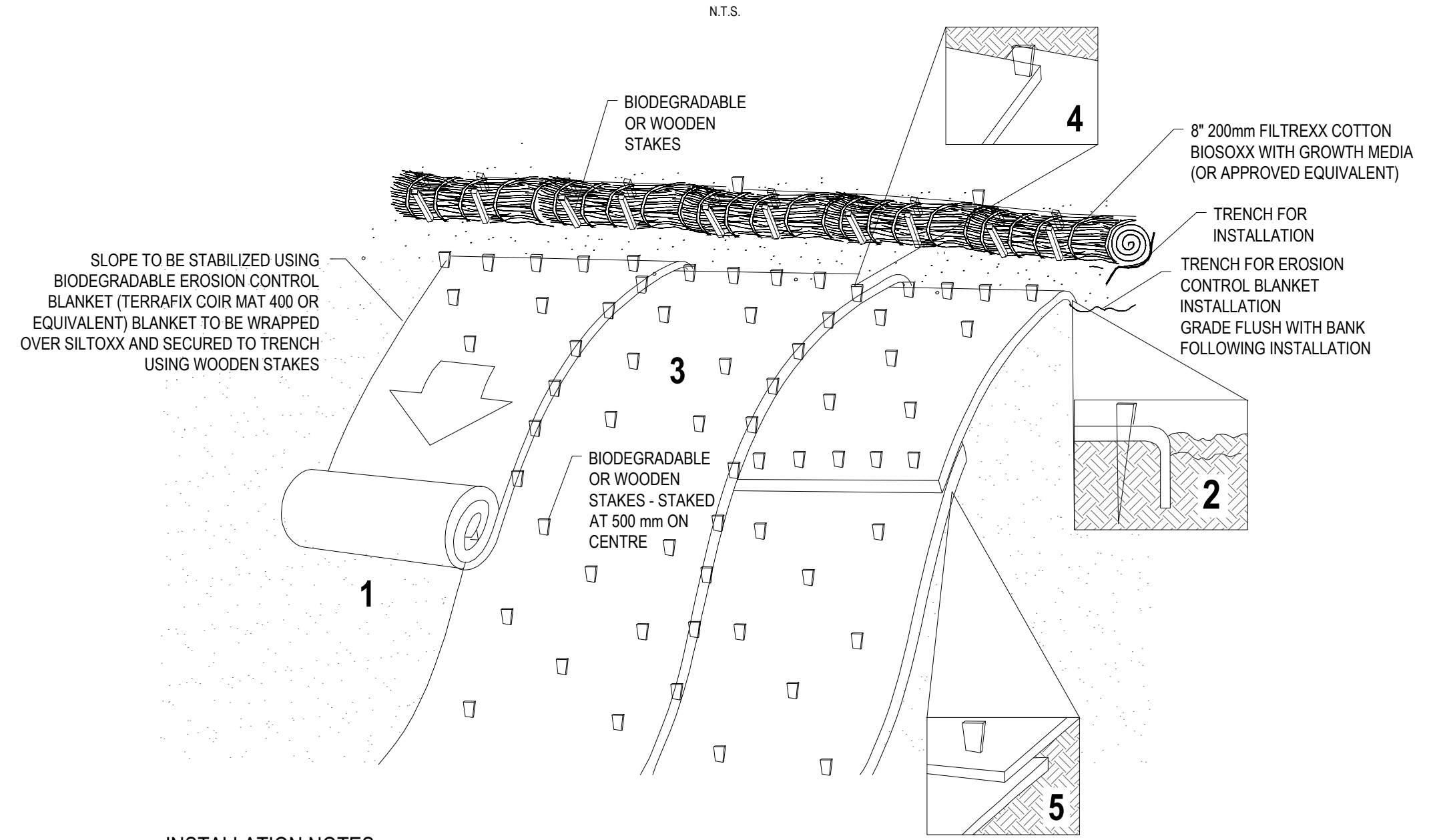


DETAIL 3 - VEGETATED BOULDER REVETMENT



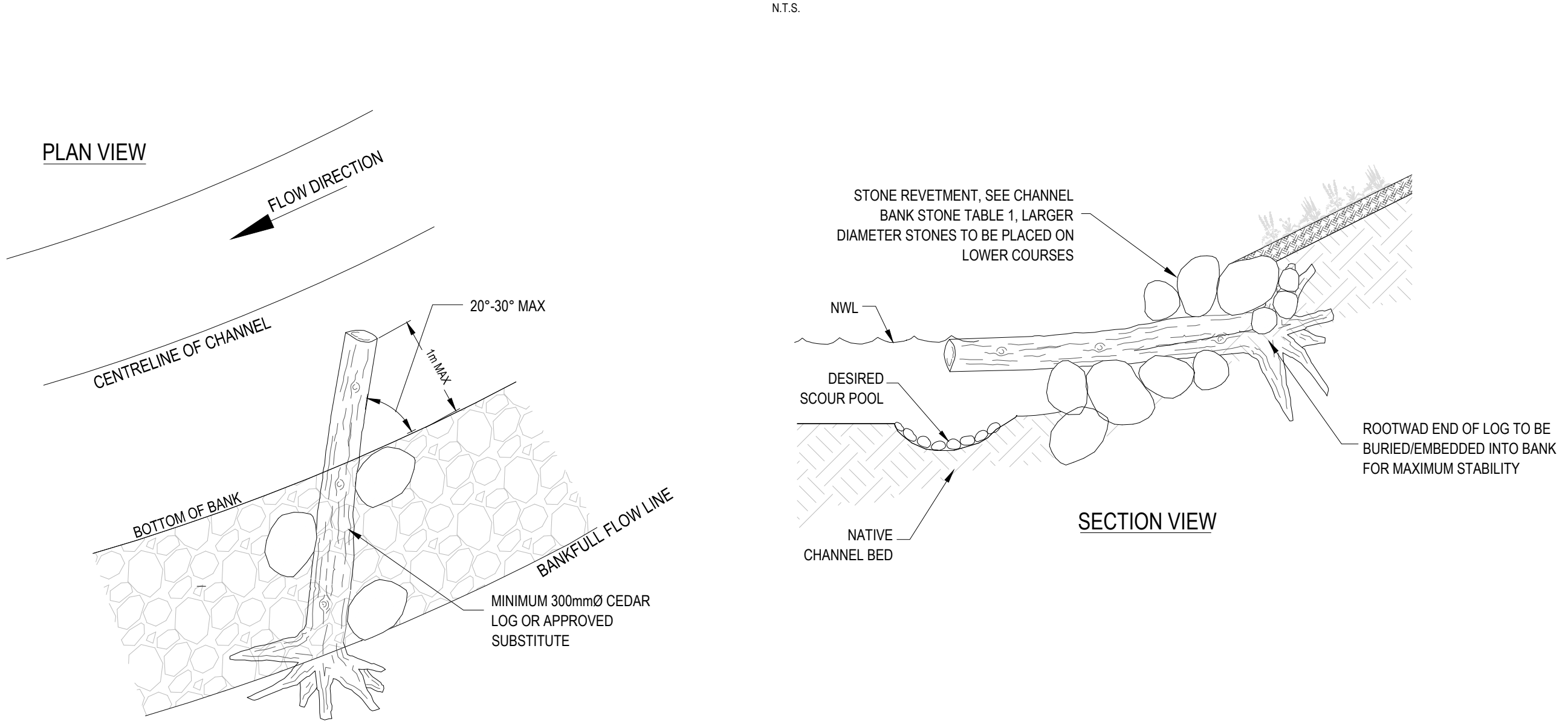
- NOTES**
1. VEGETATED BUTTRESS TO BE INSTALLED IN LIFTS.
 2. NUMBER OF LIFTS DEPENDENT ON BANK HEIGHT, SLOPE AND STONE SIZE.
 3. STONE TO BE KEYPED 500mm INTO CHANNEL BED.
 4. PLANTS TO BE INSTALLED ONE METRE APART HORIZONTALLY IN EACH LAYER. SPECIES ARRANGEMENT TO BE RANDOM. PLANT PLACEMENT SHALL BE STAGGERED SUCH THAT THEY ARE NOT VERTICALLY ALIGNED AND ARE PLANTED 'ON CENTRE'.
 5. INTEGRATE NATIVE MATERIAL AND TOPSOIL BETWEEN LIFTS WHERE LIVE STAKES OR WHIPS ARE INSTALLED. ROOTS TO BE IN FULL CONTACT WITH SOIL MATRIX.


DETAIL 5 - EROSION CONTROL BLANKET (COIR) INSTALLATION




- INSTALLATION NOTES:**
1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING APPLICATION OF 75mm FILTREXX COMPOST EROSION CONTROL BLANKET (CECB) WITH SEED MIX.
 2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET IN 150 mm DEEP BY 150 mm WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER SECURING. TRENCH TO BE GRADED FLUSH WITH BANK AFTER BURYING AND STAKING.
 3. ROLL THE BLANKETS (A) DOWN THE SLOPE.
 4. THE EDGES OF PARALLEL BLANKETS MUST BE SECURED USING BIODEGRADABLE STAKES OR WOODEN STAKES WITH APPROXIMATELY 50 mm OVERLAP.
 5. WHEN BLANKETS MUST BE SPLICED DOWN THE SLOPE, PLACE BLANKETS END OVER END (SHINGLE STYLE) WITH APPROXIMATELY 100 mm OVERLAP. STAKE THROUGH OVERLAPPED AREA APPROXIMATELY 50 mm APART.
 6. STAKE AT 500 mm ON CENTRE.

DETAIL 4 - PROPOSED BOULDER REVETMENT WITH WOODY FEATURE



CLIENT: 

PREPARED BY: 

DATE	REVISION	BY
2023-10-31	DRAFT REVISION 1	SM

DRAFT

PROJECT: **OSHAWA CREEK - SITE 3 PRELIMINARY DESIGN**

TITLE: **CONSTRUCTION DETAILS**

PROJECT NO:	1510209	DATE:	2023-10-13
DESIGN BY:	SM	DRAWN BY:	CV
		APPROVED BY:	MO
DRAWING NO:	CD	SHEET NO:	04