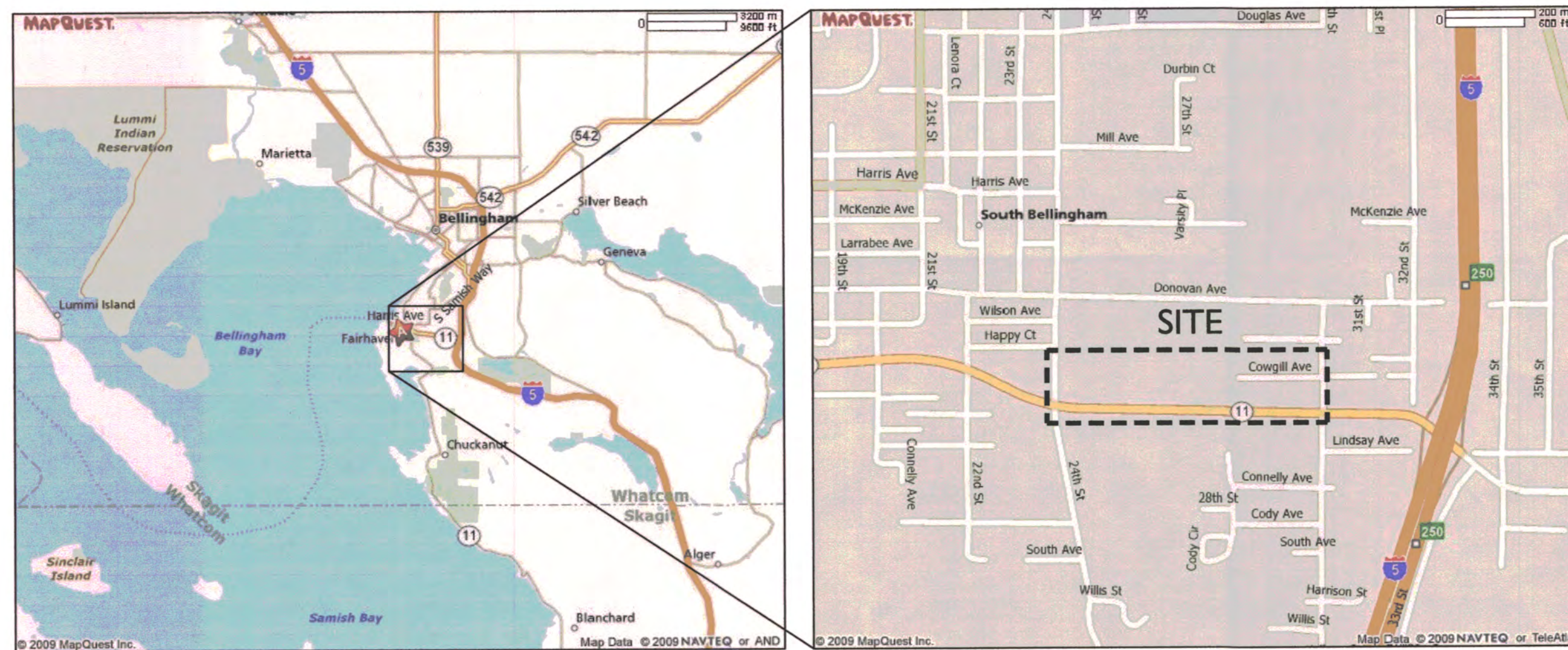


A PORTION OF LAND IN GOVERNMENT LOT 1. IN SECTION 7, TOWNSHIP 37 NORTH RANGE 3 EAST OF W.M.



750 Sixth Street South
Kirkland WA 98033
p 425.822.5242 f 425.827.8136
www.watershedco.com
Science & Design



VICINITY MAPS

PROJECT DESCRIPTIONS

THE GOALS OF THE PROJECT INCLUDE IMPROVING BUFFER HABITAT FUNCTION BY CREATING MORE BIOLOGICALLY DIVERSE STREAM BUFFERS ON BOTH SIDES OF THE CREEK, AND WIDER OVERALL BUFFERS IF POSSIBLE.

TO ACCOMPLISH THIS, THE MAIN STREAM CHANNEL AT THE EAST AND WEST ENDS OF THE PROJECT AREA WOULD BE RELOCATED AWAY FROM PRIVATE PROPERTIES TO THE NORTH AND BE, INSTEAD, CENTRALLY LOCATED ALONG THE CITY-OWNED PROPERTY ALONG OLD FAIRHAVEN PARKWAY. PORTIONS OF THE EXISTING CHANNEL WOULD REMAIN AS BACKWATER AREAS AND OTHER SECTIONS WOULD BE PARTIALLY FILLED TO FORM A SWALE TO ACCOMMODATE HIGH FLOW EVENTS AND TO PROVIDE BIOFILTRATION FOR WATER QUALITY AND SOME ADDITIONAL HABITAT.

THE MIDDLE CHANNEL SEGMENT WITHIN THE PROJECT AREA WOULD NOT BE RELOCATED. A WIDER FLOOD PLAIN INCLUDING WOODY DEBRIS AND NATIVE VEGETATION WILL BE EXCAVATED TO THE SOUTH ALONG THIS SEGMENT, AND LARGE WOODY DEBRIS WILL BE PLACED AND POOLS FORMED ALONG THE EXISTING CHANNEL.

NEW VEGETATION WILL BE PLANTED ALONG THE NEW CHANNEL AND THROUGHOUT THE BUFFER TO PROVIDE SHADE TO THE CREEK CHANNEL.

CONTACTS

CLIENT: BELLINGHAM PARKS & RECREATION DEPT.
3424 MERIDIAN STREET, BELLINGHAM, WA 98225
CONTACT: RENEE S LACROIX (360) 778-7966

PROJECT CONSULTANT: THE WATERSHED COMPANY
750 SIXTH STREET SOUTH KIRKLAND, WA 98033
CONTACT: GREG JOHNSTON (425)822-5242

PROJECT SURVEYOR: WHITE SHIELD, INC.
23412 68TH AVENUE SOUTH KENT, WA 98032
ADDRESS: 208-043-01
JOB NUMBER: (253) 867 6040
PHONE:

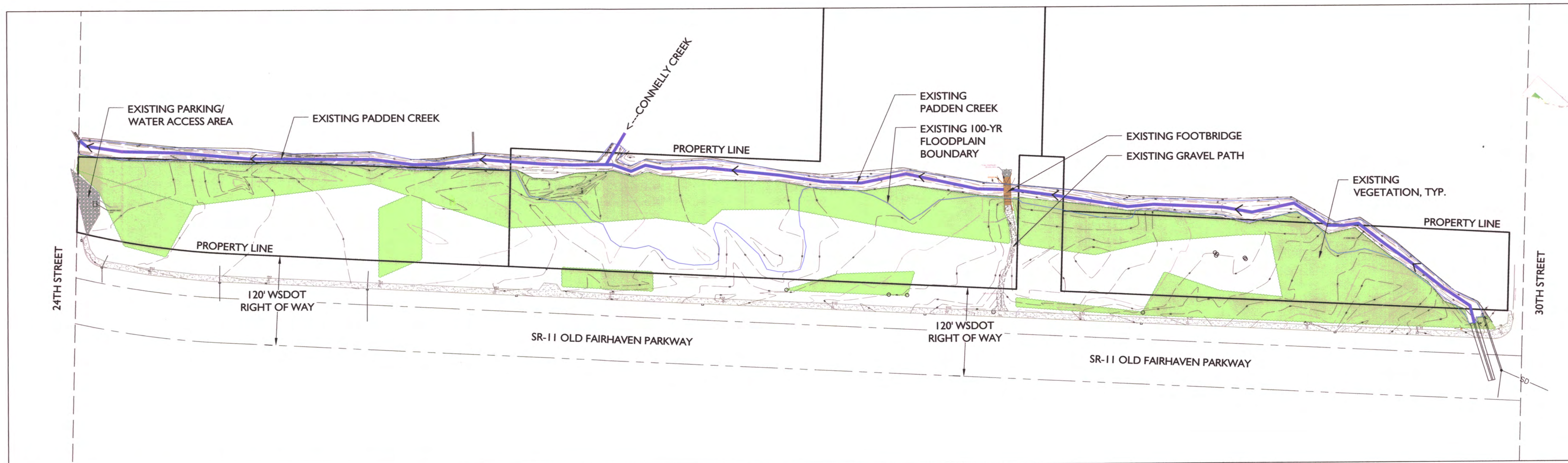
SURVEYOR NOTES:

DATUM: THE CITY OF BELLINGHAM COMPREHENSIVE MAPPING PROGRAM OF 1973.

THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED BASED ON OBSERVABLE SURFACE EVIDENCE. THE SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED.

SHEET INDEX

SHEET	SHEET TITLE
1	EXISTING SITE CONDITIONS
2	OVERALL SITE PLAN
3-6	PROPOSED GRADING AND TESC PLAN
7-8	GRADING NOTES AND SPECIFICATIONS
9	CONSTRUCTION SEQUENCE & SPECS.
10-12	RESTORATION PLANTING PLAN
13	PLAN DETAILS, NOTES AND SPECIFICATIONS

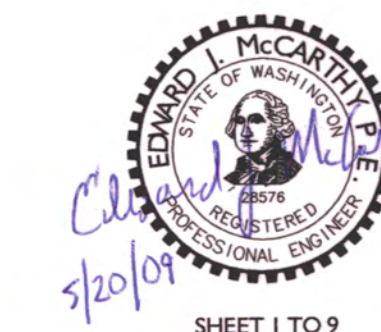


EXISTING SITE CONDITIONS

SCALE: 1" = 80'-0"



NOT FOR CONSTRUCTION
THESE PLANS HAVE BEEN SUBMITTED TO THE APPROPRIATE AGENCIES FOR REVIEW AND APPROVAL. UNTIL APPROVED, THESE PLANS ARE:
SUBJECT TO REVISION



ED McCARTHY, PE, PS
(425) 271 5734

© Copyright- The Watershed Company

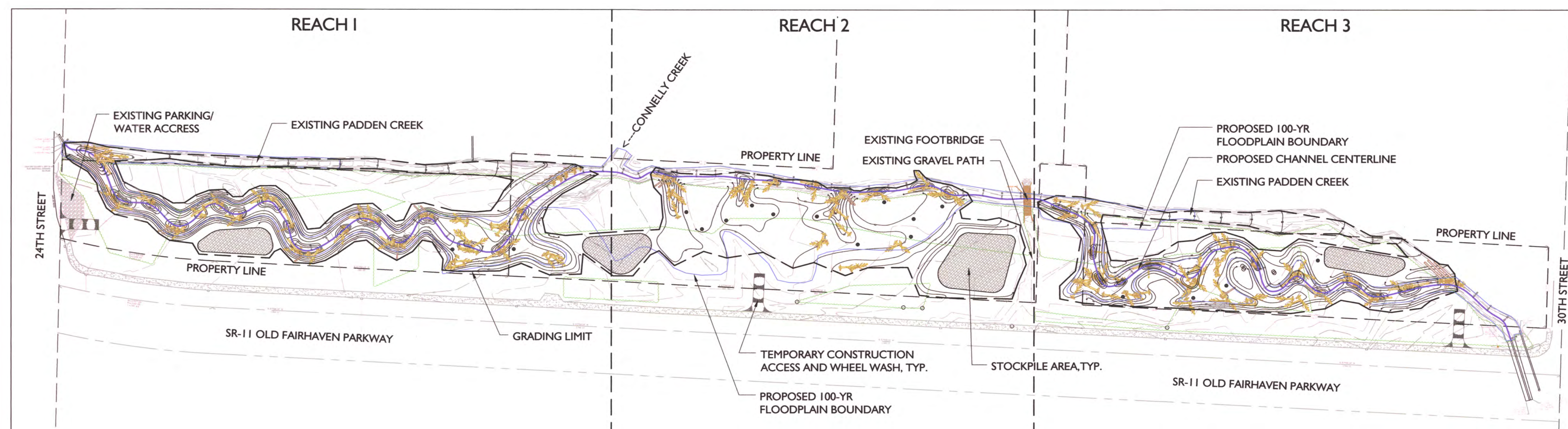
PADDEN CREEK IMPROVEMENTS
CHANNEL RELOCATION AND ENHANCEMENT
PREPARED FOR THE CITY OF BELLINGHAM

OLD FAIRHAVEN PARKWAY
BELLINGHAM, WA

SUBMITTALS & REVISIONS	
NO.	DESCRIPTION
1	60% REVIEW SET
2	PERMIT SET
3	PERMIT SET WITH STAMP

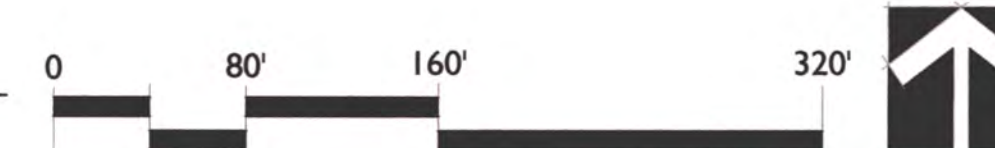
DATE	BY
03-12-09	GJ
03-30-09	EM/GJ
5-20-09	EM/GJ

SHEET SIZE:	
ORIGINAL PLAN IS 22" x 34". SCALE ACCORDINGLY.	
PROJECT MANAGER:	EM
DESIGNED:	GJ/MI
DRAFTED:	GL
CHECKED:	BW
JOB NUMBER:	061018
SHEET NUMBER:	1 OF 13



OVERALL SITE PLAN

SCALE: 1" = 80'-0"



GENERAL NOTES:

ALL WORK SHALL CONFORM TO THE LATEST EDITION OF "STANDARD SPECIFICATIONS FOR ROAD BRIDGE AND MUNICIPAL CONSTRUCTION" CURRENT EDITION (WSDOT) AND THE "CITY OF BELLINGHAM DEVELOPMENT GUIDELINES AND IMPROVEMENT STANDARDS" UNLESS INDICATED OTHERWISE BY THE CONTRACT DOCUMENTS.

IN CASE OF A CONFLICT BETWEEN THE REGULATORY SPECIFICATIONS OR STANDARDS, THE MORE STRINGENT REQUIREMENT WILL PREVAIL. ALL REFERENCES TO "SPECIFICATION SECTIONS" REFER TO THE "STANDARD SPECIFICATIONS FOR ROAD BRIDGE AND MUNICIPAL CONSTRUCTION" UNLESS OTHERWISE NOTED.

THE BEDDING FOR ANY PVC PIPE SHALL BE PEA GRAVEL, ACCORDING TO CITY OF BELLINGHAM STANDARD PLAN No. SS-750. ANY TRENCH BACKFILL UNDER EXISTING OR FUTURE PAVING SHALL BE BANK RUN GRAVEL FOR TRENCH BACKFILL AND SHALL BE COMPACTED TO 95% OF MAXIMUM DENSITY (MODIFIED PROCTOR).

PLUG ALL CULVERTS, SEWERS, AND CONDUITS PRIOR TO ABANDONMENT. AS PER STANDARD SPECIFICATIONS SECTION 7-08.3(4)

ALL LAWN AND VEGETATED AREAS OUTSIDE THE PROJECT LIMITS DISTURBED BY CONSTRUCTION EQUIPMENT, VEHICLES OR PERSONNEL SHALL BE RESTORED TO ORIGINAL CONDITION OR BETTER, AT THE CONTRACTORS EXPENSE.

THIS PROJECT MAY REQUIRE VARIOUS PERMITS AS OUTLINED IN THE PROJECT SPECIFICATION'S GENERAL PROVISIONS. ALL WORK SHALL BE PERFORMED IN A MANNER WHICH ENSURES CONFORMANCE WITH ANY PERMIT REQUIREMENTS.

THE CONTRACTOR SHALL ATTEND PRE-CONSTRUCTION CONFERENCE WITH THE CITY OF BELLINGHAM ENGINEERING DIVISION PRIOR TO BEGINNING CONSTRUCTION.

UNDERGROUND UTILITIES ARE KNOWN TO EXIST IN THE AREA OF CONSTRUCTION. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT THE UTILITY OWNERS FOR LOCATIONS AND TO NOTIFY THE ENGINEER PROMPTLY OF ANY CONFLICT. THE ONE-CALL NUMBER FOR UNDERGROUND UTILITIES IS: 1-800-424-5555.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THE INTEGRITY OF ADJACENT UTILITIES WHICH MAY INCLUDE, BUT ARE NOT LIMITED TO, WATER, SEWER, STORM SEWER, POWER, TELEPHONE, CABLE TV, GAS, IRRIGATION, AND STREET LIGHTING.

THE CONTRACTOR SHALL NOTIFY RESIDENTS AND BUSINESSES 48 HOURS IN ADVANCE OF ANY WORK AFFECTING ACCESS OR SERVICE AND SHALL MINIMIZE INTERRUPTIONS TO DRIVEWAYS FOR RESIDENTS AND BUSINESSES ADJACENT TO THE PROJECT.

PUBLIC RIGHTS-OF-WAY SHALL BE KEPT IN A CLEAN AND SERVICEABLE CONDITION AT ALL TIMES. IN THE EVENT MATERIALS ARE INADVERTENTLY DEPOSITED ON ROADWAYS, THE MATERIAL SHALL BE PROMPTLY REMOVED. MATERIALS ARE TO BE SWEEPED AND REMOVED WITH A VACUUM SWEEPER.

PUBLIC AND PRIVATE DRAINAGE WAYS SHALL BE PROTECTED FROM POLLUTION. NO MATERIAL IS TO BE DISCHARGED TO, OR DEPOSITED IN STORMWATER SYSTEMS THAT MAY RESULT IN VIOLATION OF STATE OR FEDERAL WATER QUALITY STANDARDS.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONSTRUCTING, MAINTAINING, & REMOVING EROSION CONTROL MEASURES (SILT FENCE, ROCK CHECK DAMS, SILT PONDS, CATCH BASIN FILTERS, ETC.) THROUGHOUT THE DURATION OF THE PROJECT. ALL EROSION CONTROL WORK IS CONSIDERED INCIDENTAL TO THE ITEMS OF WORK IN THE CONTRACT FOR THIS PROJECT.

REFER TO THE 'TEMPORARY EROSION AND SEDIMENTATION CONTROL PLAN' SHEETS AND BID ITEMS NOTED IN THE CONTRACT PORTION OF THE PROJECT SPECIFICATIONS FOR SPECIFIC EROSION CONTROL NOTES.

EROSION NOTES:

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION, MAINTENANCE AND REMOVAL OF ALL EROSION CONTROL MEASURES (SILT FENCE, ROCK CHECK DAMS, SILT PONDS, ETC., AS DIRECTED BY THE ENGINEER) THROUGHOUT THE DURATION OF THE PROJECT.

IN THE EVENT MATERIALS ARE INADVERTENTLY DEPOSITED ON ROADWAYS, THE MATERIAL SHALL BE PROMPTLY REMOVED. MATERIALS ARE TO BE SWEEPED AND REMOVED PRIOR TO ANY STREET FLUSHING. PUBLIC AND PRIVATE DRAINAGE WAYS SHALL BE PROTECTED FROM POLLUTION. NO MATERIAL IS TO BE DISCHARGED OR DEPOSITED IN STORMWATER SYSTEMS THAT MAY RESULT IN VIOLATION OF STATE OR FEDERAL WATER QUALITY STANDARDS.

THE CONTRACTOR IS REQUIRED TO PREPARE AND IMPLEMENT A TEMPORARY EROSION AND SEDIMENT CONTROL PLAN (TESCP). THE PLAN WILL BE REVIEWED, APPROVED AND A PERMIT ISSUED BY THE CITY PRIOR TO COMMENCEMENT OF WORK. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING AND PAYING FOR PERMIT.

A COPY OF THE TESCP SHALL BE ON SITE THROUGHOUT THE DURATION OF CONSTRUCTION.

STABILIZE SOILS- ALL EXPOSED AND UNWORKED SOILS SHALL BE STABILIZED BY APPLICATION OF EFFECTIVE BEST MANAGEMENT PRACTICES THAT PROTECT THE SOIL FROM THE EROSION FORCES OF WATER & WIND EROSION. NO UNWORKED SOILS SHALL REMAIN EXPOSED FOR MORE THAN SEVEN (7) DAYS.

SAWCUTTING- SLURRY AND CUTTINGS SHALL BE VACUUMED DURING CUTTING AND SURFACING OPERATIONS. SLURRY AND CUTTINGS SHALL NOT REMAIN ON PAVEMENT OVERNIGHT.

PROJECT SUMMARY:

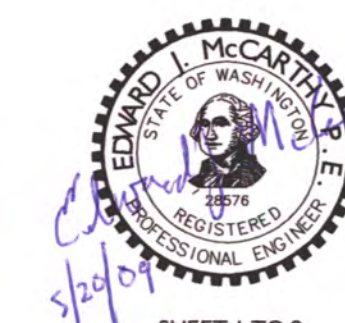
THE PADDEN CREEK RESTORATION AND ENHANCEMENT PROJECT CAN (BUT NEED NOT) BE THOUGHT OF AS THREE DISTINCT SEGMENTS FOR FUNDING AND IMPLEMENTATION PURPOSES (SEE THE SHEET ABOVE). WHILE IT IS INTENDED THAT THE THREE NEW CHANNEL SEGMENTS WILL BE CONSTRUCTED AT THE SAME TIME AS PART OF THE SAME OVERALL PROJECT, IT WOULD BE POSSIBLE TO CONSTRUCT THEM AT DIFFERENT TIMES, AS SEPARATE PHASES OF THE SAME PROJECT. EACH SEGMENT (OR PHASE) COULD READILY BE CONSTRUCTED AS A DISCRETE, INDEPENDENT, SELF-CONTAINED PROJECT, CAPABLE OF FUNCTIONING ON ITS OWN TO PROVIDE OVERALL BENEFITS TO SALMONID FISH HABITAT IN CASE OF DELAY, DELETION, OR MODIFICATION OF OTHER PROJECT PHASES. AN ADVANTAGE OF CONSTRUCTING THE PROJECT IN PHASES WOULD BE THAT THE AREAS AVAILABLE FOR STOCKPILING EXCAVATION SPOILS AND CONSTRUCTION MATERIALS DURING EACH PHASE WOULD BE INCREASED, AND HENCE THE OVERALL LOGISTICS OF MATERIALS HANDLING AND STORAGE WOULD THEREBY BE IMPROVED.

PHASES OR PROJECT SEGMENTS ARE GENERALLY DEFINED BY CROSSINGS OF OR CONNECTIONS TO THE EXISTING STREAM ALIGNMENT BY THE PROPOSED ALIGNMENT. THEY ARE DEFINED AS:

1. THE LOWER SEGMENT (REACH 1) EXTENDS FROM 24TH STREET TO THE MOUTH OF CONNELLY CREEK.
2. THE MIDDLE SEGMENT (REACH 2) EXTENDS FROM THE CONNELLY CREEK CONFLUENCE UPSTREAM TO THE EXISTING FOOTBRIDGE, AND
3. THE UPPER SEGMENT (REACH 3) EXTENDS FROM THE FOOTBRIDGE UPSTREAM TO 30TH STREET.

THE UPPER AND LOWER OF THESE SEGMENTS (REACHES 1 AND 3) ARE CONSIDERED TO BE CHANNEL RELOCATIONS, IN THAT FLOWS WILL BE DIVERTED INTO NEW CHANNEL SEGMENTS, AND THE OLD CHANNEL WILL BE FILLED OR REMAIN ONLY AS A SWALE AND/OR REMNANT BACKWATERS. EACH RELOCATED CHANNEL SEGMENT WILL ENTAIL A SEPARATE UPSTREAM DIVERSION OF STREAM FLOW, AT WHICH POINT WATER WOULD ENTER THE NEW CHANNEL SECTION, AS WELL AS A SEPARATE DOWNSTREAM POINT WHERE STREAM FLOW WOULD REJOIN THE TO-REMAIN, EXISTING CHANNEL SECTION EXTENDING DOWNSTREAM. THE MIDDLE SEGMENT (REACH 2) WILL BE CONSTRUCTED AS A FLOODPLAIN WIDENING, WITH LOW AND BASE FLOWS REMAINING IN THE EXISTING CHANNEL.

NOT FOR CONSTRUCTION
THESE PLANS HAVE BEEN SUBMITTED TO THE APPROPRIATE AGENCIES FOR REVIEW AND APPROVAL. UNTIL APPROVED, THESE PLANS ARE:
SUBJECT TO REVISION



SHEET 1 TO 9

ED McCARTHY, PE, PS
(425) 271 5734

PADDEN CREEK IMPROVEMENTS CHANNEL RELOCATION AND ENHANCEMENT PREPARED FOR THE CITY OF BELLINGHAM

SUBMITTALS & REVISIONS			
NO.	DATE	DESCRIPTION	BY
1	03-12-09	60% REVIEW SET	GJ
2	03-30-09	PERMIT SET	EM/GJ
3	5-20-09	PERMIT SET WITH STAMP	EM/GJ

SHEET SIZE:
ORIGINAL PLAN IS 22' x 34' .
SCALE ACCORDINGLY.

PROJECT MANAGER: EM
DESIGNED: GJ/MI
DRAFTED: GL
CHECKED: BW
JOB NUMBER:

061018
SHEET NUMBER:
2 OF 13

DATE: 8/19/2009
PRINTED BY: GRACE BERGMAN
FILENAME: 061018_SRP-100%_JANPA.DWG

**PADDEN CREEK IMPROVEMENTS
CHANNEL RELOCATION AND ENHANCEMENT
PREPARED FOR THE CITY OF BELLINGHAM**

OLD FAIRHAVEN PARKWAY
BELLINGHAM, WA

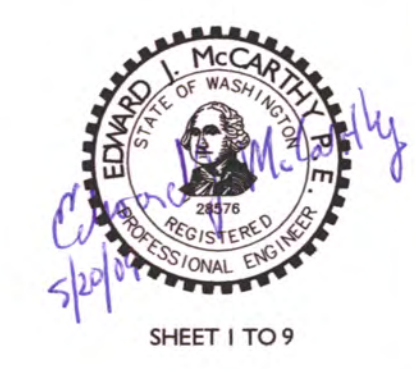
SUBMITTALS & REVISIONS	
NO.	DESCRIPTION
1	60% REVIEW SET
2	PERMIT SET
3	PERMIT SET WITH STAMP

SHEET SIZE:
ORIGINAL PLAN IS 22" x 34"
SCALE ACCORDINGLY.

PROJECT MANAGER: EM
DESIGNED: GJ/MI
DRAFTED: GL
CHECKED: BW

JOB NUMBER:
061018

SHEET NUMBER:
3 OF 13



SHEET 1 TO 9
ED MCCARTHY, PE, PS
(425) 271 5734
© Copyright- The Watershed Company

TESC NOTES:

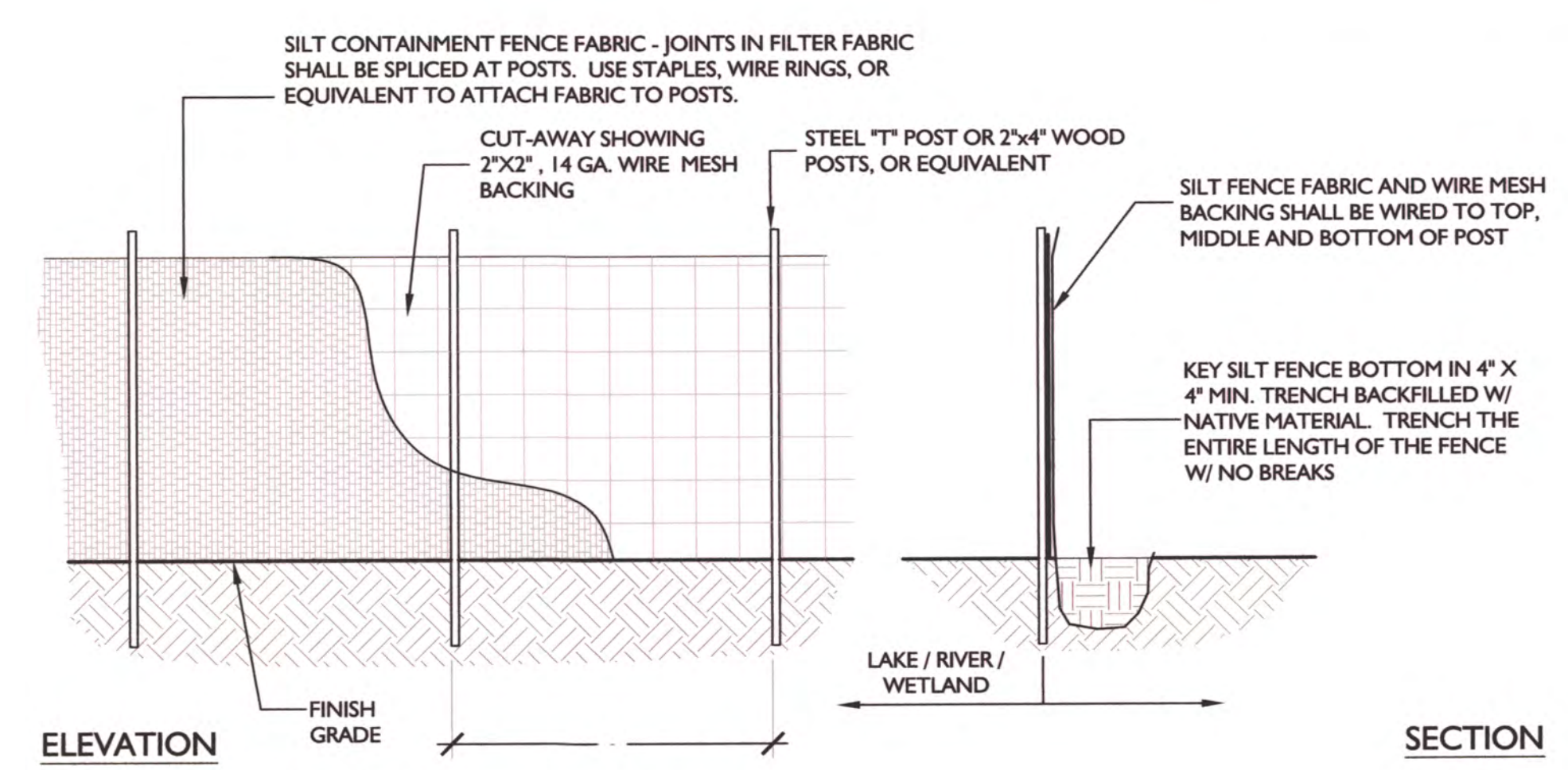
GENERAL

- ALL CLEARING AND GRADING WORK SHALL MEET THE REQUIREMENTS AS SHOWN ON SHEET 2.
- A PRE-CONSTRUCTION MEETING SHALL BE HELD WITH CITY, CONTRACTOR, AND DESIGNER REPRESENTATIVES PRESENT, AND ALL REQUIRED PERMITS MUST BE APPROVED PRIOR TO START OF CONSTRUCTION. CONDUCT WEEKLY PROGRESS MEETINGS WITH CONTRACTOR, DESIGNER, AND OWNER OR OWNER'S REPRESENTATIVE.
- TEMPORARY EROSION/SEDIMENT CONTROLS SHALL BE INSTALLED AND OPERATING PRIOR TO ANY GRADING OR CONSTRUCTION-RELATED SOIL DISTURBANCE. THESE CONTROLS MUST BE SATISFACTORILY MAINTAINED AND REMOVED UNTIL CONSTRUCTION IS COMPLETE. ALL EXPOSED SOILS ARE TO BE TEMPORARILY STABILIZED BY MULCHING WITH STRAW.
- ADDITIONAL EROSION-CONTROL MEASURES MAY BE REQUIRED BY CITY REPRESENTATIVES DEPENDING ON SITE AND WEATHER CONDITIONS. ANY WORK PERFORMED DURING THE RAINY SEASON, OCTOBER 1 THROUGH APRIL 30, SHALL REQUIRE A PLAN TO LIMIT THE EXTENT OF SOIL EXPOSURE.
- AT THE DISCRETION OF THE OWNER OR OWNER'S REPRESENTATIVE, WORK MAY BE SUSPENDED DURING PERIODS OF INCLEMENT WEATHER TO REDUCE ACTUAL OR POTENTIAL EROSION AND/OR SEDIMENTATION.
- WHEN WORK IS STOPPED OR COMPLETED IN SPECIFIC, DEFINED AREAS, THOSE AREAS ARE TO BE MULCHED WITH STRAW.
- TURBID RUNOFF FROM THE PROJECT AREA SHALL BE TREATED AS NECESSARY TO ACHIEVE TURBIDITY LEVEL COMPARABLE TO OR BELOW THAT OF THE RECEIVING WATER BEFORE DISCHARGE. THE WASHINGTON DEPARTMENT OF ECOLOGY MUST BE NOTIFIED AT (360) 738 6250 IF THE TURBIDITY OF RUNOFF FROM THE PROJECT AREA EXCEEDS 250 NTUS.
- LOCATIONS SHOWN OF EXISTING UTILITIES MAY BE INCOMPLETE AND ARE APPROXIMATE. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY, CORRECT AND DETERMINE ANY ADDITIONAL LOCATIONS SO AS TO AVOID DAMAGE, DISTURBANCE, OR INTERRUPTION OF SERVICE.
- ALL NATIVE VEGETATION IS TO REMAIN UNDISTURBED OUTSIDE OF GRADED AREAS, ACCESS CORRIDORS, AND/OR TO-BE-REPLANTED AREAS.
- FLOW FROM IMPERVIOUS SURFACES, INCLUDING TRAILS AND ACCESS ROADS, SHALL BE CONNECTED TO A DRAINAGE SYSTEM AS SOON AS POSSIBLE.

SPECIFIC

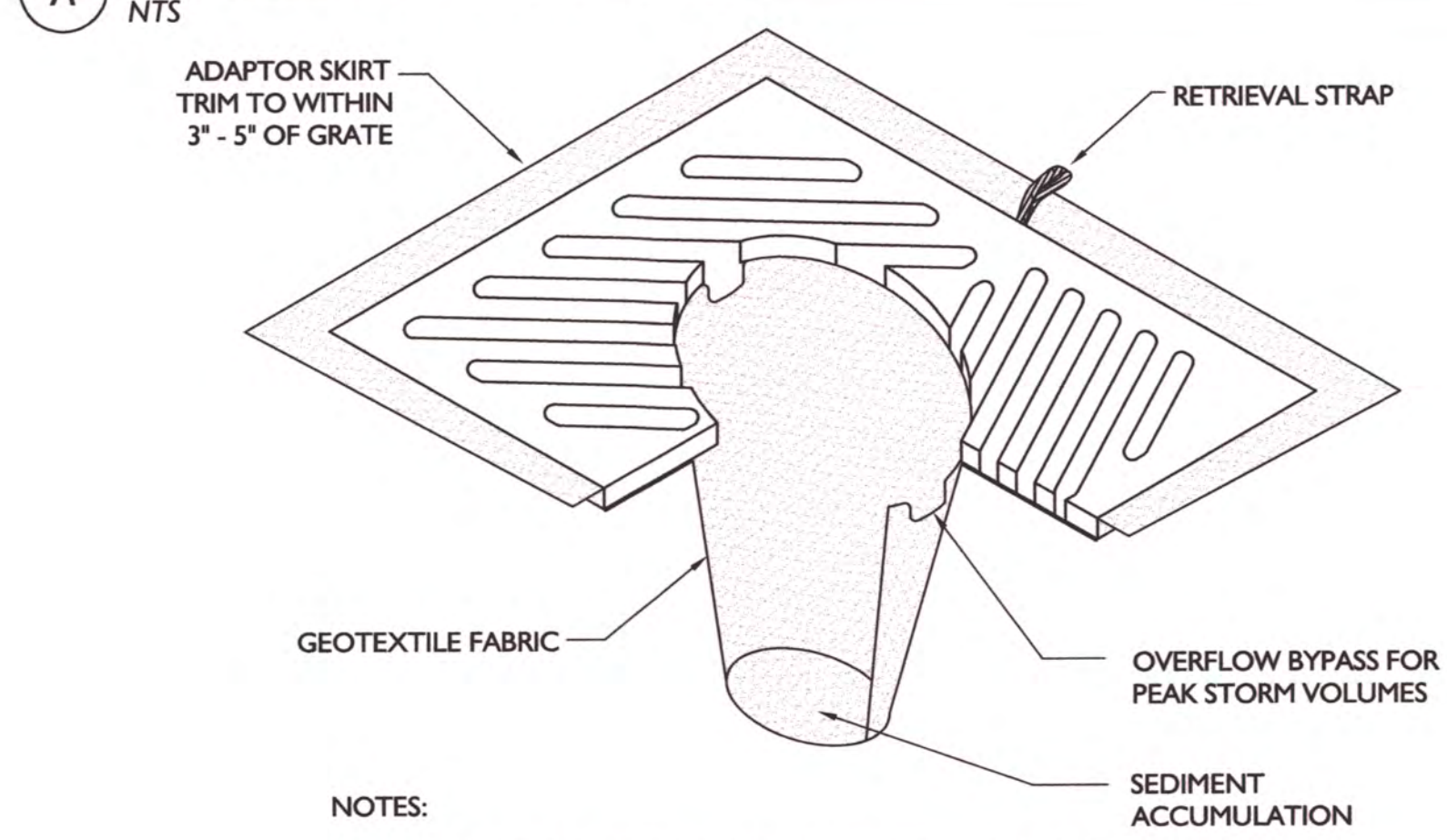
TESC PROCEDURES ARE EXPLICITLY DEFINED IN THE CONTRACT DOCUMENTS, AND INCLUDE THE FOLLOWING:

- LOCATING AND DELINEATING THE GRADING LIMITS AND ALL EXISTING TREES AND OTHER VEGETATION TO BE PRESERVED WITHIN THE WORK AREA AS INDICATED ON THE PLAN VIEW DRAWINGS AND AS DIRECTED BY THE OWNER OR OWNER'S REPRESENTATIVE.
- INSTALLING AND MAINTAINING REINFORCED SILT FENCING PER THE APPROPRIATE DETAIL AT CONSTRUCTION LIMITS, INCLUDING IDENTIFIED STOCKPILE AREAS.
- INSTALLING TIRE WASH(ES)/CONSTRUCTION ACCESS PAD(S) AT LOCATION(S) IDENTIFIED ON PLAN AND PER APPROPRIATE DETAIL.
- MAINTAINING A SWEEPER ON-SITE AND IMMEDIATELY REMOVING ANY SOIL THAT IS TRACKED ONTO PAVED SURFACES AS A RESULT OF CONSTRUCTION.
- INSTALLATION OF CATCH BASIN INSERTS IN ALL CATCH BASINS LIKELY TO BE IMPACTED BY CONSTRUCTION ACTIVITIES.
- STABILIZING STOCKPILE AREAS AND ALL EXPOSED SOILS BY SUITABLE APPLICATION OF BEST MANAGEMENT PRACTICES (BMPs), INCLUDING, BUT NOT LIMITED TO, PLASTIC COVERING, MULCHING, OR SOD OR OTHER VEGETATION. STRAW MULCHING (3" DEPTH) OF EXPOSED SOILS IS TO OCCUR WITHIN SEVEN DAYS OF CHANNEL WORK AND RESTORATION FEATURE COMPLETION FOR EACH DISTINCT STREAM SEGMENT OR SEPARATE WORK AREA. FROM OCTOBER 1 THROUGH APRIL 30, NO UNWORKED SOIL SHALL REMAIN EXPOSED FOR MORE THAN 48 HOURS. FROM MAY 1 THROUGH SEPTEMBER 30, NO UNWORKED SOIL SHALL REMAIN EXPOSED FOR MORE THAN SEVEN DAYS.
- PUMP SYSTEM TO INFILTRATE TURBID SEEPAGE WATER OR TREAT IT BEFORE DISCHARGING BACK INTO THE CREEK.
- FUELING OF VEHICLES AT LEAST 100 FEET FROM OPEN WATER, AND SPILL KITS FOR THOSE VEHICLES.
- POSTING A PUBLIC INFORMATION SIGN LISTING 24-HOUR EMERGENCY PHONE NUMBERS FOR THE CITY AND THE CONTRACTOR. THE SIGN MUST BE POSTED AT THE PROJECT SITE IN FULL VIEW OF THE PUBLIC AND THE CONTRACTORS, AND IT MUST REMAIN POSTED UNTIL FINAL SIGN-OFF BY THE CITY CLEARING AND GRADING INSPECTOR OR EQUIVALENT PARTY.
- REMOVAL OF ALL TEMPORARY EROSION AND SEDIMENT CONTROL BMPs WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION OR AFTER THE TEMPORARY BMPs ARE NO LONGER NEEDED. TRAPPED SEDIMENT SHALL BE REMOVED OR STABILIZED ON SITE. DISTURBED SOIL AREAS RESULTING FROM BMP REMOVAL SHALL BE PERMANENTLY STABILIZED.



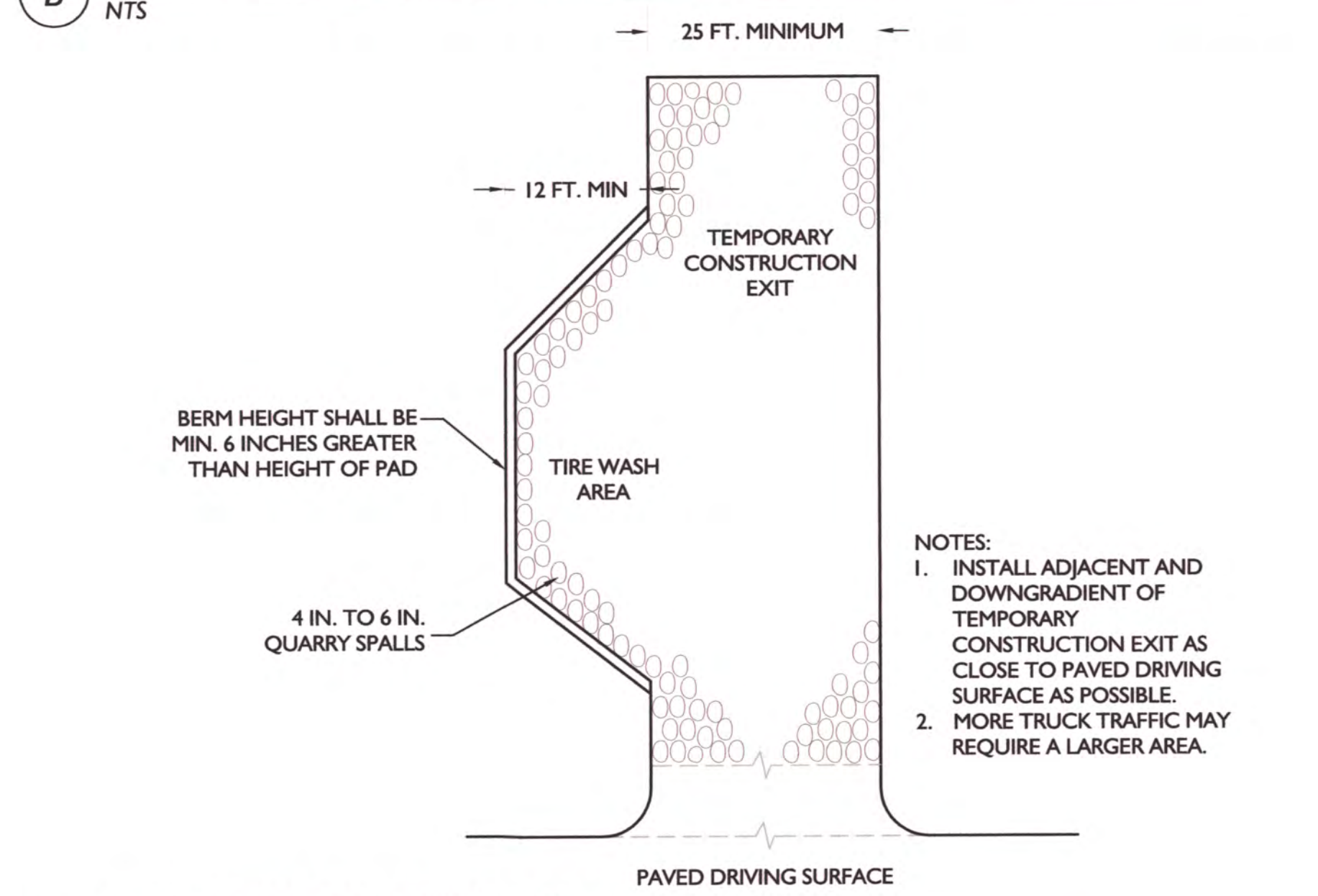
- SILT FENCE MAINTENANCE STANDARDS:**
- ANY DAMAGE SHALL BE REPAIRED IMMEDIATELY.
 - SEDIMENT SHALL BE REMOVED WHEN ACCUMULATION EXCEEDS 6" IN DEPTH.

A TYPICAL SILT FENCE DETAIL
NTS



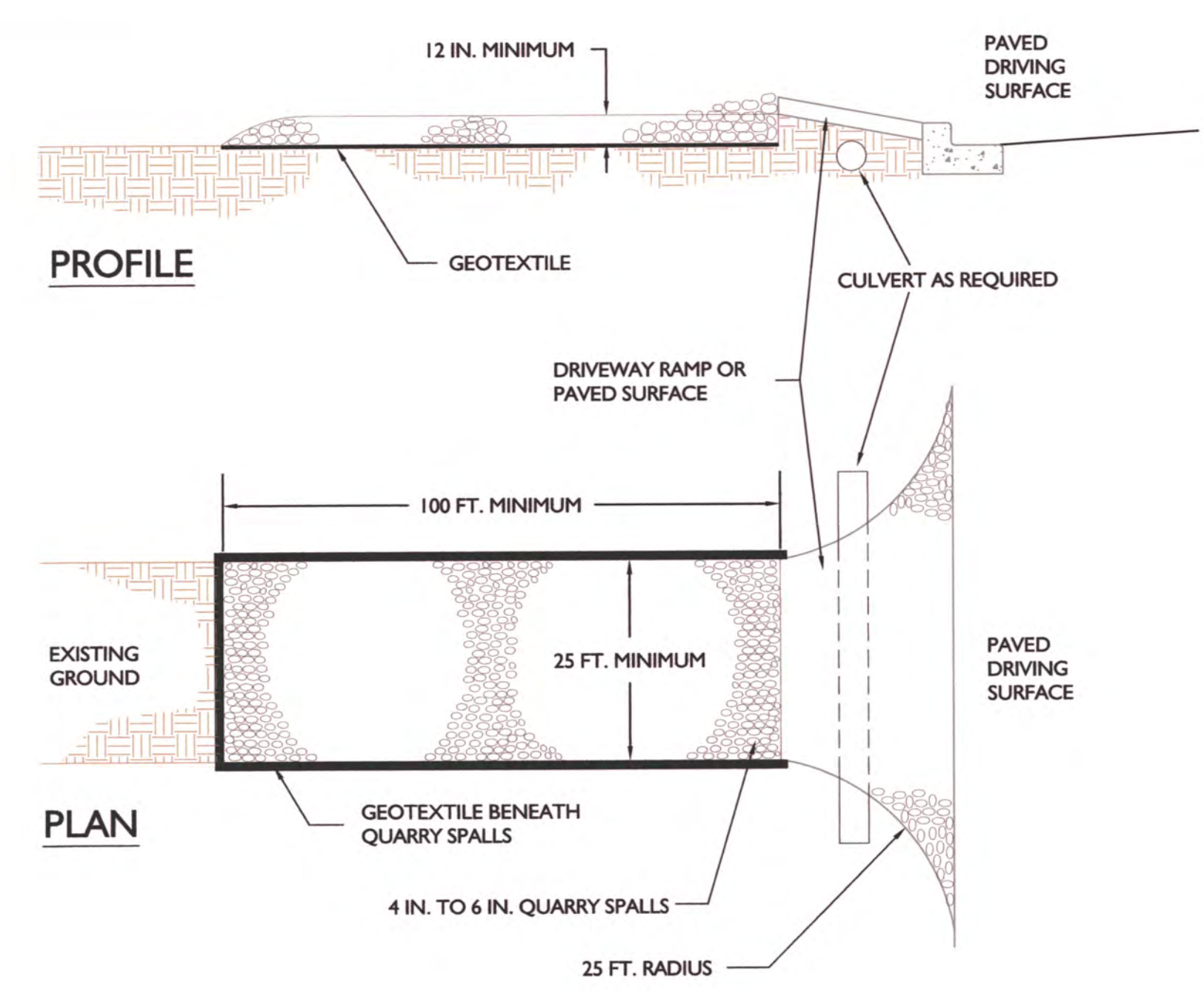
- NOTES:**
- INSERT SHALL BE INSTALLED PRIOR TO CLEARING AND GRADING ACTIVITY, OR UPON PLACEMENT OF A NEW CATCH BASIN.
 - SEDIMENT SHALL BE REMOVED FROM THE UNIT WHEN IT BECOMES HALF FULL.
 - SEDIMENT REMOVAL SHALL BE ACCOMPLISHED BY REMOVING THE INSERT, EMPTYING, AND RE-INSERTING IT INTO THE CATCH BASIN.

B TYPICAL CATCH BASIN INSERT DETAIL
NTS



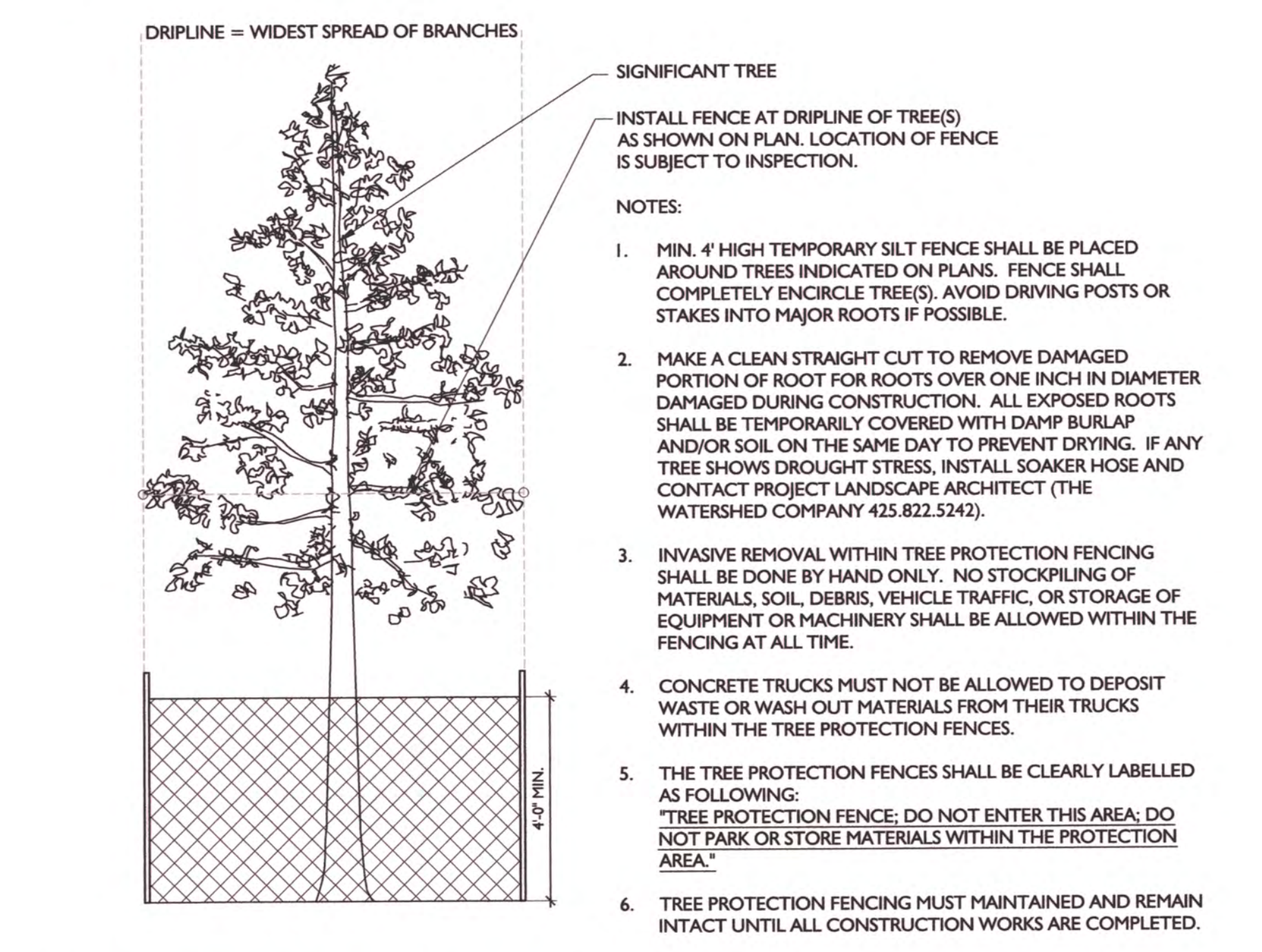
- NOTES:**
- INSTALL ADJACENT AND DOWNGRADIENT OF TEMPORARY CONSTRUCTION EXIT AS CLOSE TO PAVED DRIVING SURFACE AS POSSIBLE.
 - MORE TRUCK TRAFFIC MAY REQUIRE A LARGER AREA.

C TYPICAL WHEEL WASH DETAIL
NTS



- NOTES:**
- PAD SHALL BE REMOVED AND REPLACED WHEN SOIL IS EVIDENT ON THE SURFACE OF THE PAD OR AS DIRECTED BY THE CITY CLEARING AND GRADING INSPECTOR.
 - PAD SHALL BE INSTALLED IN PLANTING STRIP AS APPROPRIATE.
 - PAD THICKNESS SHALL BE INCREASED IF SOIL CONDITIONS DICTATE OR PER THE DIRECTION OF THE CITY CLEARING AND GRADING INSPECTOR.
 - MINIMUM DIMENSIONS MAY BE MODIFIED AS REQUIRED BY SITE CONDITIONS UPON APPROVAL OF THE CITY CLEARING AND GRADING INSPECTOR.

D TEMPORARY CONSTRUCTION ENTRANCE DETAIL
NTS



- NOTES:**
- MIN. 4' HIGH TEMPORARY SILT FENCE SHALL BE PLACED AROUND TREES INDICATED ON PLANS. FENCE SHALL COMPLETELY ENCIRCLE TREE(S). AVOID DRIVING POSTS OR STAKES INTO MAJOR ROOTS IF POSSIBLE.
 - MAKE A CLEAN STRAIGHT CUT TO REMOVE DAMAGED PORTION OF ROOT FOR ROOTS OVER ONE INCH IN DIAMETER DAMAGED DURING CONSTRUCTION. ALL EXPOSED ROOTS SHALL BE TEMPORARILY COVERED WITH DAMP BURLAP AND/OR SOIL ON THE SAME DAY TO PREVENT DRYING. IF ANY TREE SHOWS DROUGHT STRESS, INSTALL SOAKER HOSE AND CONTACT PROJECT LANDSCAPE ARCHITECT (THE WATERSHED COMPANY 425.822.5242).
 - INVASIVE REMOVAL WITHIN TREE PROTECTION FENCING SHALL BE DONE BY HAND ONLY. NO STOCKPILING OF MATERIALS, SOIL, DEBRIS, VEHICLE TRAFFIC, OR STORAGE OF EQUIPMENT OR MACHINERY SHALL BE ALLOWED WITHIN THE FENCING AT ALL TIME.
 - CONCRETE TRUCKS MUST NOT BE ALLOWED TO DEPOSIT WASTE OR WASH OUT MATERIALS FROM THEIR TRUCKS WITHIN THE TREE PROTECTION FENCES.
 - THE TREE PROTECTION FENCES SHALL BE CLEARLY LABELLED AS FOLLOWING: "TREE PROTECTION FENCE; DO NOT ENTER THIS AREA; DO NOT PARK OR STORE MATERIALS WITHIN THE PROTECTION AREA."
 - TREE PROTECTION FENCING MUST MAINTAINED AND REMAIN INTACT UNTIL ALL CONSTRUCTION WORKS ARE COMPLETED.

E TYPICAL TREE PROTECTION FENCE DETAIL
NTS

NOT FOR CONSTRUCTION

THESE PLANS HAVE BEEN SUBMITTED TO THE APPROPRIATE AGENCIES FOR REVIEW AND APPROVAL UNTIL APPROVED, THESE PLANS ARE:

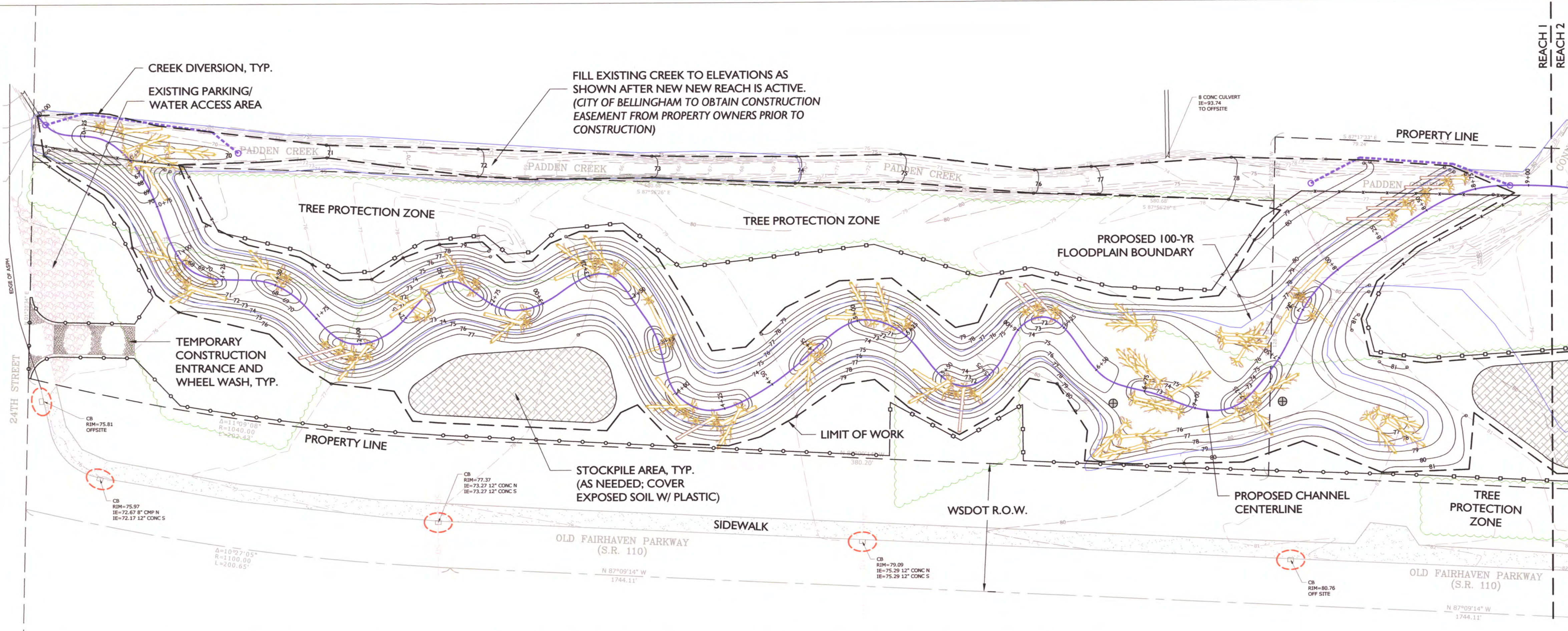
SUBJECT TO REVISION

PADDEN CREEK IMPROVEMENTS
CHANNEL RELOCATION AND ENHANCEMENT
PREPARED FOR THE CITY OF BELLINGHAM

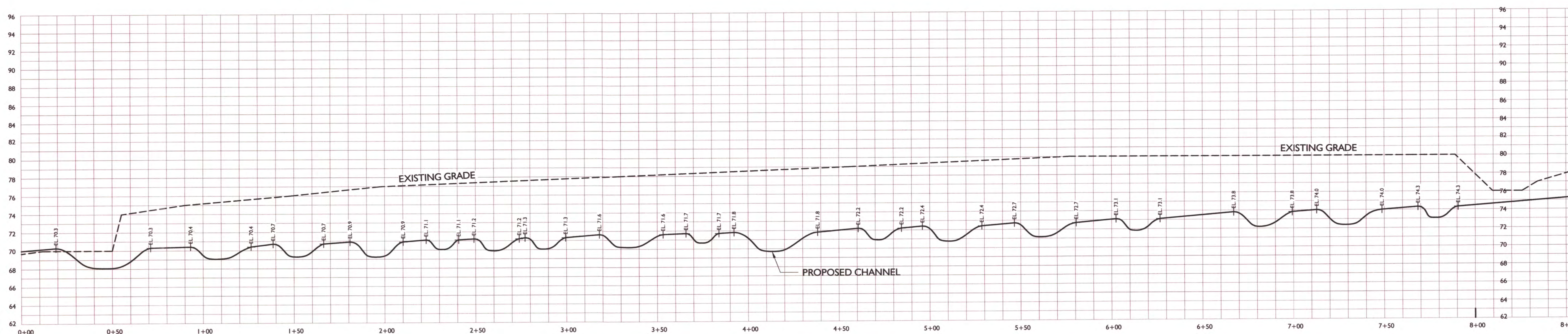
OLD FAIRHAVEN PARKWAY
BELLINGHAM, WA

MAP LEGEND

- EXISTING VEGETATION
- PROPOSED CONTOUR
- EXISTING CONTOUR
- LIMIT OF GRADING
- BANK LOG (C/B)
- DIGGER LOG (D/B)
- FALLEN TREE (B/B)
- REVTMENT LOG (A/B)
- ROOT WAD (E/B)
- SNAG (F/B)
- SILT FENCE (A/3)
- CONSTRUCTION (CLEARING LIMIT) FENCE (D/3)
- TREE PROTECTION FENCE (E/3)
- CATCH BASIN INSERT (B/3)



PROPOSED CHANNEL GRADING & TESC PLAN - REACH I
SCALE: 1" = 30'-0"



STREAM PROFILE (STN 0+00 - 8+50)

H=1:30 V=1:6

NOT FOR CONSTRUCTION
THESE PLANS HAVE BEEN SUBMITTED TO THE APPROPRIATE AGENCIES FOR REVIEW AND APPROVAL. UNTIL APPROVED, THESE PLANS ARE SUBJECT TO REVISION



ED McCARTHY, P.E.P.S.
(425) 271 5734

SUBMITTALS & REVISIONS	
NO.	DESCRIPTION
1	03-12-09 60% REVIEW SET
2	03-30-09 PERMIT SET
3	5-20-09 PERMIT SET WITH STAMP

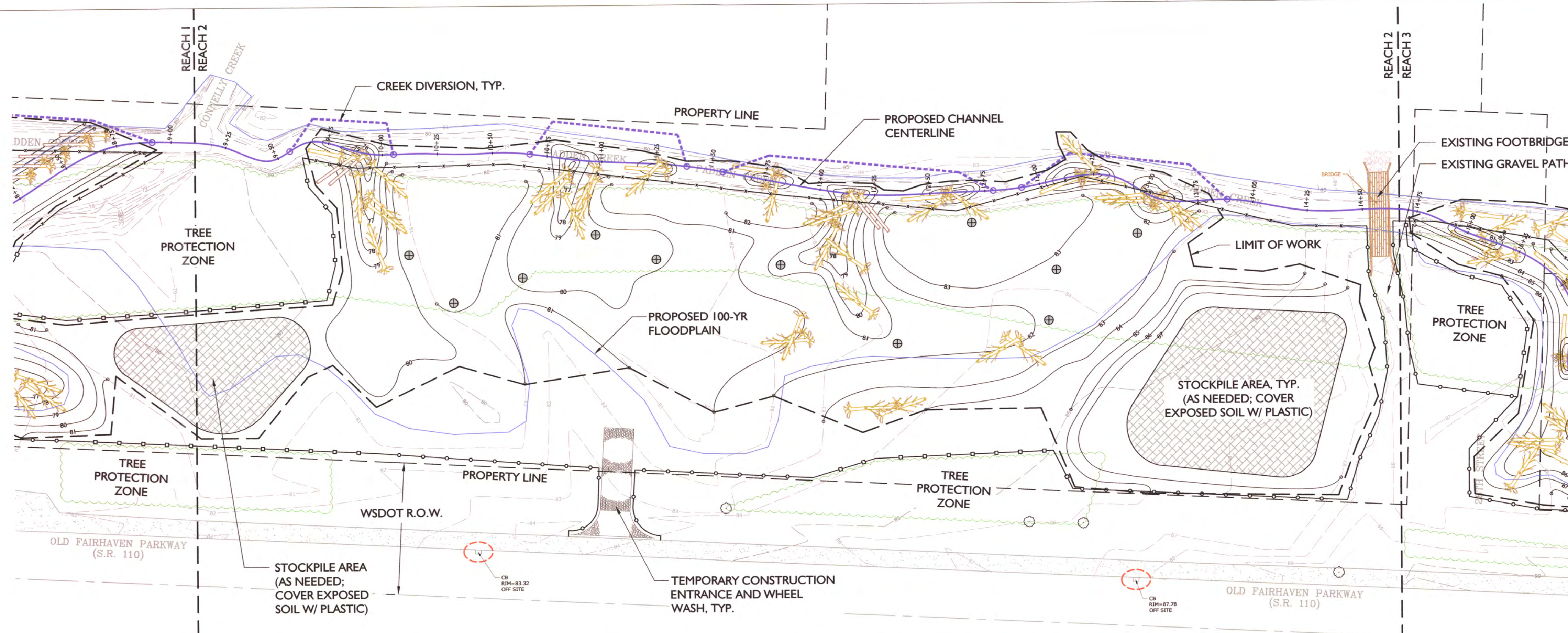
SHEET SIZE:
ORIGINAL PLAN IS 22" x 34".
SCALE ACCORDINGLY.

PROJECT MANAGER: EM
DESIGNED: GJ/MI
DRAFTED: GL
CHECKED: BW
JOB NUMBER:

061018
SHEET NUMBER:
4 OF 13

PADDEN CREEK IMPROVEMENTS
CHANNEL RELOCATION AND ENHANCEMENT
PREPARED FOR THE CITY OF BELLINGHAM

OLD FAIRHAVEN PARKWAY
BELLINGHAM, WA

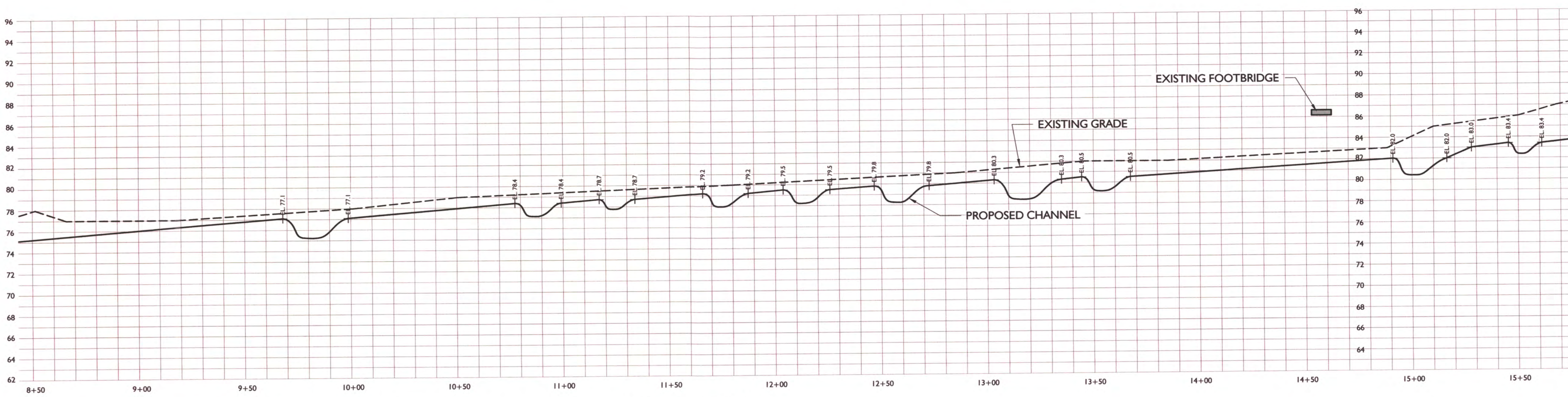


MAP LEGEND

- EXISTING VEGETATION
- PROPOSED CONTOUR
- EXISTING CONTOUR
- LIMIT OF GRADING
- BANK LOG (C/B)
- DIGGER LOG (D/B)
- FALLEN TREE (F/B)
- REVETMENT LOG (A/B)
- ROOT WAD (E/B)
- SNAG (F/B)
- SILT FENCE (A/S)
- CONSTRUCTION (CLEARING LIMIT) FENCE (D/S)
- TREE PROTECTION FENCE (E/S)
- CATCH BASIN INSERT (B/S)

PROPOSED CHANNEL GRADING & TESC PLAN - REACH 2

SCALE: 1" = 30'-0"



STREAM PROFILE (STN 8+50 - 15+50)

H=1:30 V=1:6

NOT FOR CONSTRUCTION
THESE PLANS HAVE BEEN SUBMITTED TO THE APPROPRIATE AGENCIES FOR REVIEW AND APPROVAL UNTIL APPROVED, THESE PLANS ARE:
SUBJECT TO REVISION



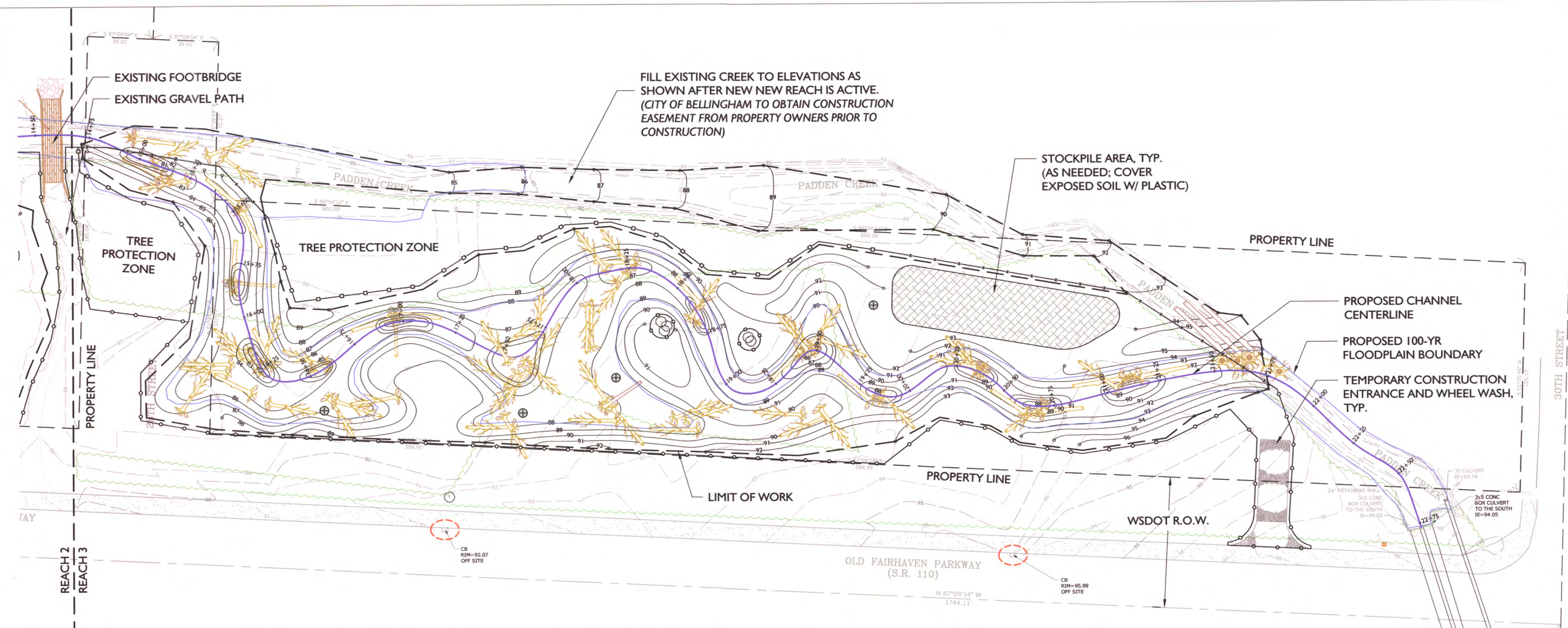
ED McCARTHY, PE, PS
(425) 271 5734
SHEET 1 TO 9

SUBMITTALS & REVISIONS

NO.	DATE	DESCRIPTION	BY
1	03-12-09	60% REVIEW SET	GJ
2	03-30-09	PERMIT SET	EM/GJ
3	5-20-09	PERMIT SET WITH STAMP	EM/GJ

SHEET SIZE:
ORIGINAL PLAN IS 22" x 34".
SCALE ACCORDINGLY.

PROJECT MANAGER: EM
DESIGNED: GJ/MI
DRAFTED: GL
CHECKED: BW
JOB NUMBER:
061018
SHEET NUMBER:
5 OF 13

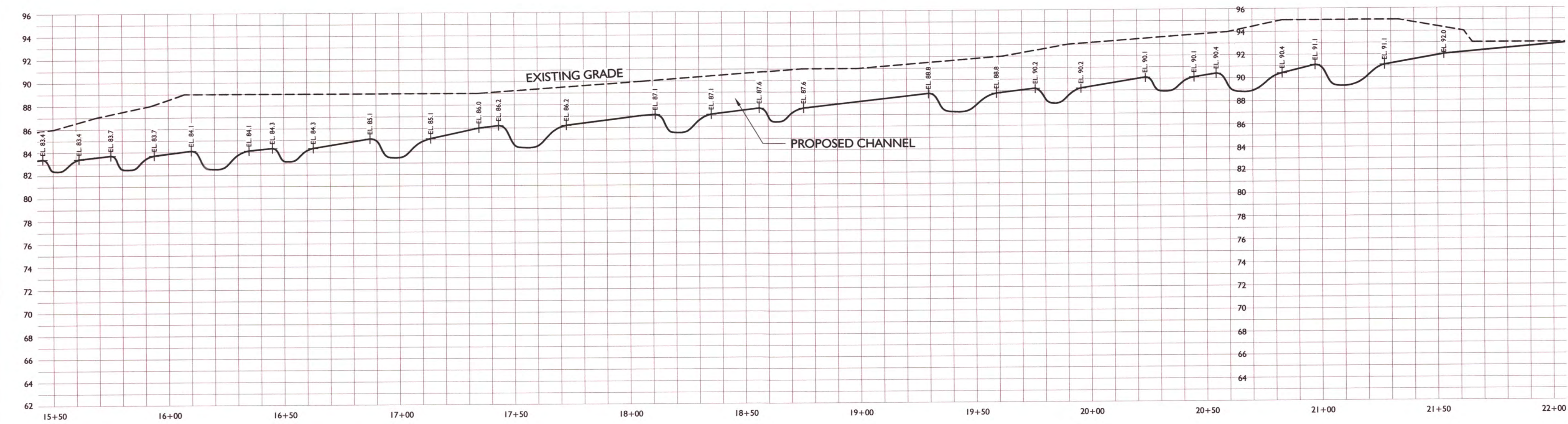


MAP LEGEND

- EXISTING VEGETATION
- PROPOSED CONTOUR
- EXISTING CONTOUR
- LIMIT OF GRADING
- BANK LOG (C 8)
- DIGGER LOG (D 8)
- FALLEN TREE (R 8)
- REVETMENT LOG (A 8)
- ROOT WAD (E 8)
- SNAG (F 8)
- SILT FENCE (A 3)
- CONSTRUCTION (CLEARING LIMIT) FENCE (D 3)
- TREE PROTECTION FENCE (E 3)
- CATCH BASIN INSERT (B 3)

PROPOSED CHANNEL GRADING & TESC PLAN - REACH 3

SCALE: 1" = 30'-0"



STREAM PROFILE (STN 15+50 - 21+78)

H=1:30 V=1:6

NOT FOR CONSTRUCTION
THESE PLANS HAVE BEEN SUBMITTED TO THE APPROPRIATE AGENCIES FOR REVIEW AND APPROVAL UNTIL APPROVED, THESE PLANS ARE:
SUBJECT TO REVISION



SHEET 1 TO 9
ED McCARTHY, PE, PS
(425) 271 5734

PADDEN CREEK IMPROVEMENTS CHANNEL RELOCATION AND ENHANCEMENT PREPARED FOR THE CITY OF BELLINGHAM

OLD FAIRHAVEN PARKWAY
BELLINGHAM, WA

SUBMITTALS & REVISIONS

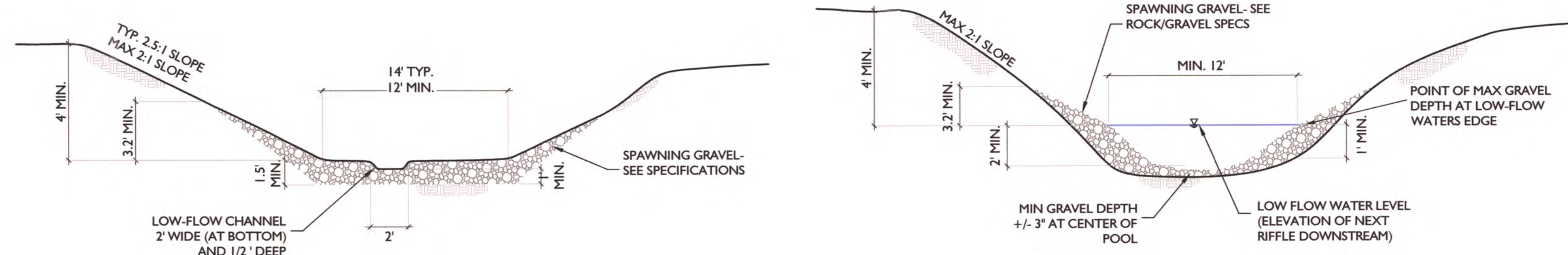
NO.	DATE	DESCRIPTION	BY
1	03-12-09	60% REVIEW SET	GJ
2	03-30-09	PERMIT SET	EM/GJ
3	5-20-09	PERMIT SET WITH STAMP	EM/GJ

SHEET SIZE:
ORIGINAL PLAN IS 22" x 34".
SCALE ACCORDINGLY.

PROJECT MANAGER: EM
DESIGNED: GJ/MI
DRAFTED: GL
CHECKED: BW
JOB NUMBER:

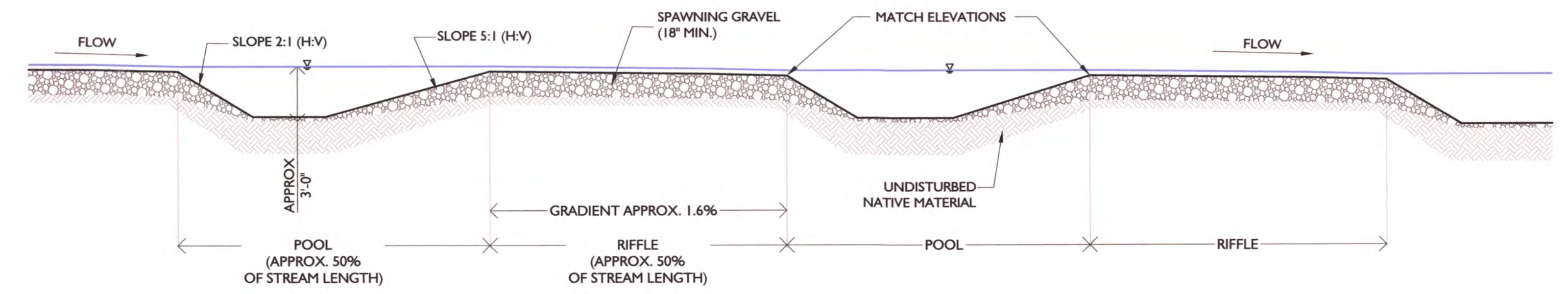
061018
SHEET NUMBER:
6 OF 13

REACH 1 - TYPICAL STREAM CROSS SECTIONS



A TYPICAL RIFFLE CONSTRUCTION FOR REACH 1
NTS

B TYPICAL POOL CONSTRUCTION FOR REACH 1
NTS



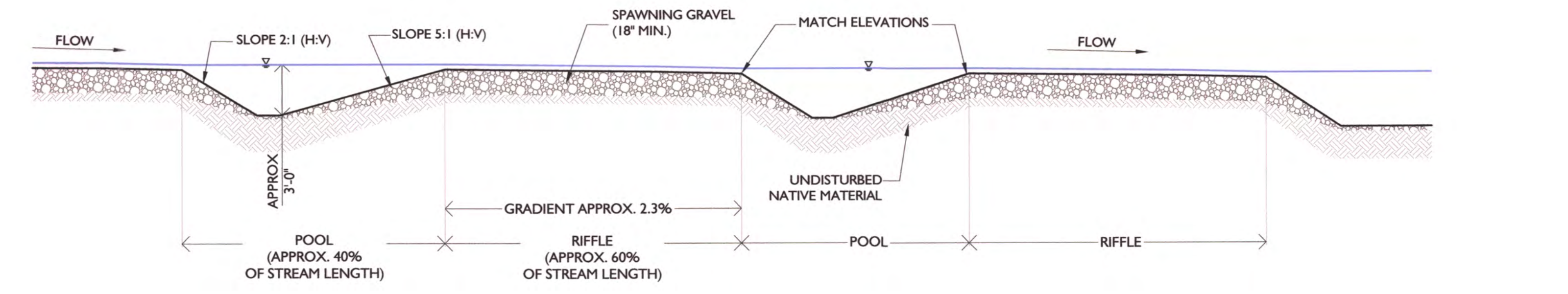
C TYPICAL STREAM PROFILE FOR REACH 1
NTS

REACH 3 - TYPICAL STREAM CROSS SECTIONS



D TYPICAL RIFFLE CONSTRUCTION FOR REACH 3
NTS

E TYPICAL POOL CONSTRUCTION FOR REACH 3
NTS



F TYPICAL STREAM PROFILE FOR REACH 3
NTS

PADDEN CREEK IMPROVEMENTS
CHANNEL RELOCATION AND ENHANCEMENT
PREPARED FOR THE CITY OF BELLINGHAM

OLD FAIRHAVEN PARKWAY
BELLINGHAM, WA

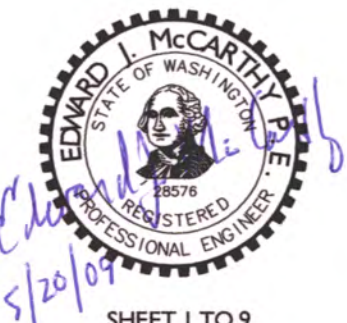
SUBMITTALS & REVISIONS			
NO.	DATE	DESCRIPTION	BY
1	03-12-09	60% REVIEW SET	GJ
2	03-30-09	PERMIT SET	EM, GJ
3	5-20-09	PERMIT SET WITH STAMP	EM, GJ

SHEET SIZE:
ORIGINAL PLAN IS 22" x 34"
SCALE ACCORDINGLY.

PROJECT MANAGER: EM
DESIGNED: GJ/MI
DRAFTED: GL
CHECKED: BW
JOB NUMBER:

061018
SHEET NUMBER:
7 OF 13

NOT FOR CONSTRUCTION
THESE PLANS HAVE BEEN SUBMITTED
TO THE APPROPRIATE AGENCIES FOR
REVIEW AND APPROVAL. UNTIL
APPROVED, THESE PLANS ARE:
SUBJECT TO REVISION



ED McCARTHY, PE, PS
(425) 271 5734

**PADDEN CREEK IMPROVEMENTS
CHANNEL RELOCATION AND ENHANCEMENT
PREPARED FOR THE CITY OF BELLINGHAM**

OLD FAIRHAVEN PARKWAY
BELLINGHAM, WA

SUBMITTALS & REVISIONS	
NO.	DESCRIPTION
1	60% REVIEW SET
2	PERMIT SET
3	PERMIT SET WITH STAMP

SHEET SIZE:
ORIGINAL PLAN IS 22" x 34"
SCALE ACCORDINGLY.

PROJECT MANAGER: EM
DESIGNED: GJ/MI
DRAFTED: GL
CHECKED: BW
JOB NUMBER:

061018
SHEET NUMBER:
8 OF 13



ED MCCARTHY, PE, PFS
(425) 271 5734
SHEET 1 TO 9

LOGS SHALL BE SECURED WITH 3/4" DIAMETER GALVANIZED EYE BOLTS DRIVEN THROUGH PILOT HOLES DRILLED THROUGH THE CENTER OF LOGS WITH 3" GALV. BRIDGE WASHERS AT EACH END. EYE BOLTS WILL THEN BE CHAINED TO MANTA RAY MR3 ANCHOR (OR OTHER APPROVED DEVICE) CAPABLE OF HOLDING 4,000 LBS MINIMUM. ONCE NUT IS FIRMLY SECURED, CLUT OFF BOLT APPROX. 1/4" ABOVE THE NUT AND HAMMER BOLT END TO PREVENT REMOVAL OF NUT.

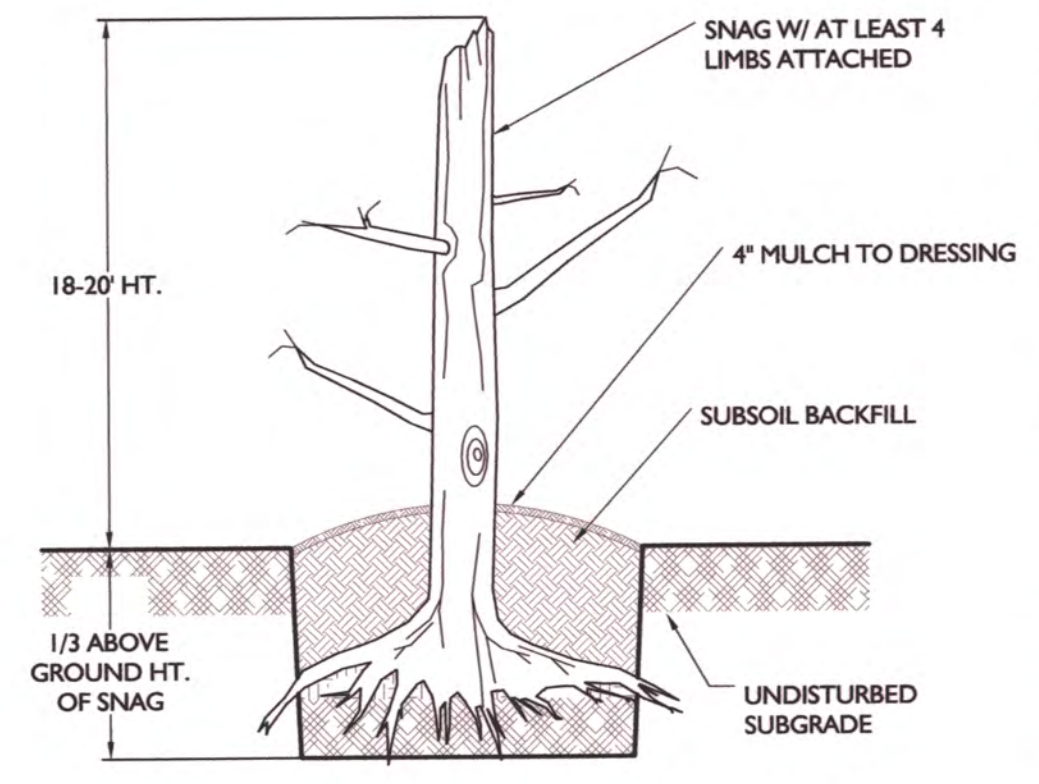
EYE-BOLT (OR THREADED BAR) SHALL PASS THROUGH MIN. 12" OF SOLID WOOD.

DRIVE ANCHOR APPROX. 30° FROM VERTICAL AND 30° LANDWARD FROM A LINE PARALLEL TO THE BANK (I.E. AIMED UPSTREAM AND INTO THE BANK)

MANTA RAY MR-3 ANCHOR. DRIVE MIN. 7" INTO GROUND. ATTACHED TO EYE BOLT W/ 3/4" GALV. CHAIN

NOTE: IN SOME INSTANCES, IF MANTA RAY IS ATTACHED TO CTB-10 CONTINUOUSLY THREADED BAR, IT MAY BE FEASIBLE TO PLACE THE LOG SUCH THAT THE ROD PASSES THROUGH THE PRE-DRILLED HOLE AND SECURED USING A BRIDGE WASHER AND NUT AS DESCRIBED ABOVE.

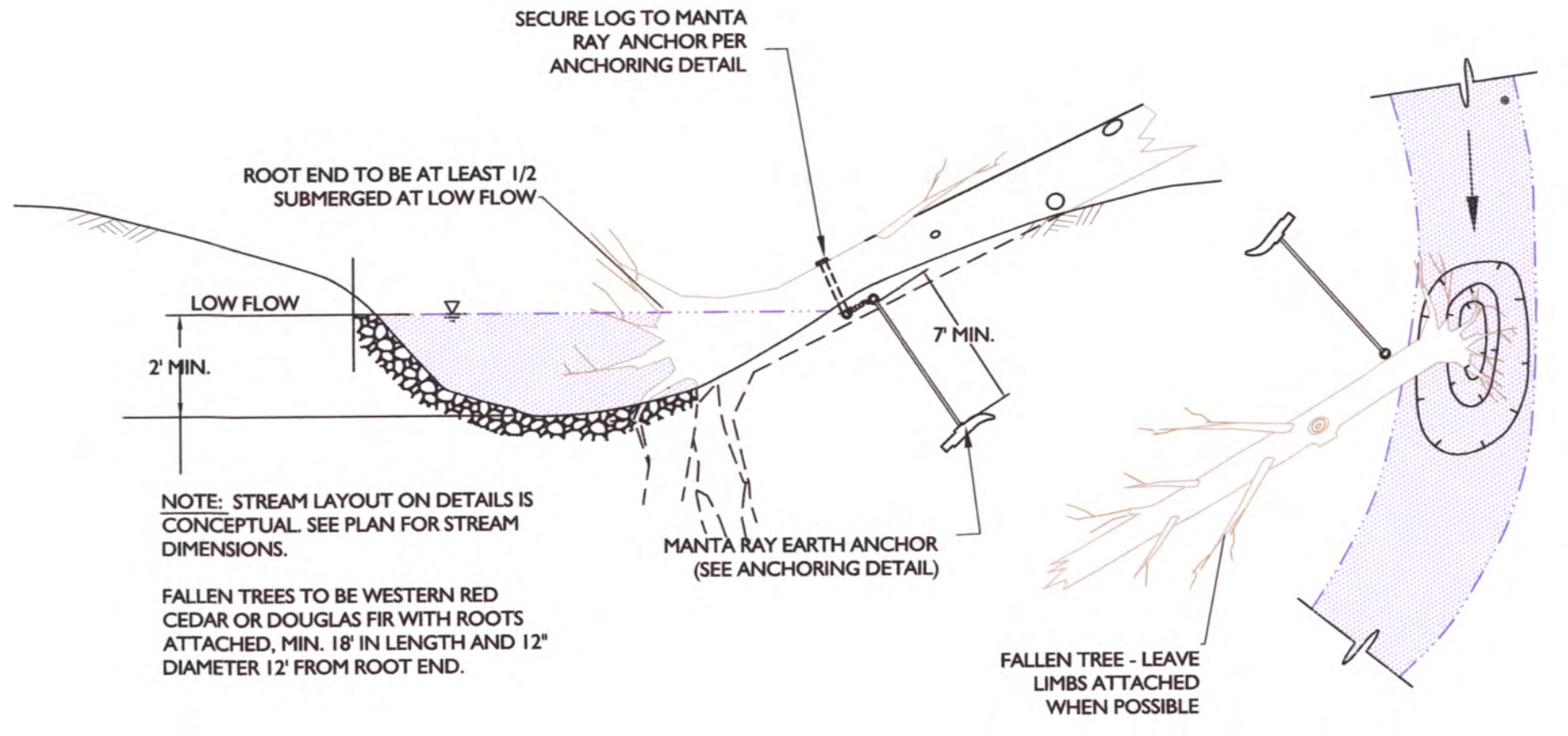
C TYPICAL ANCHORING DETAIL
NTS



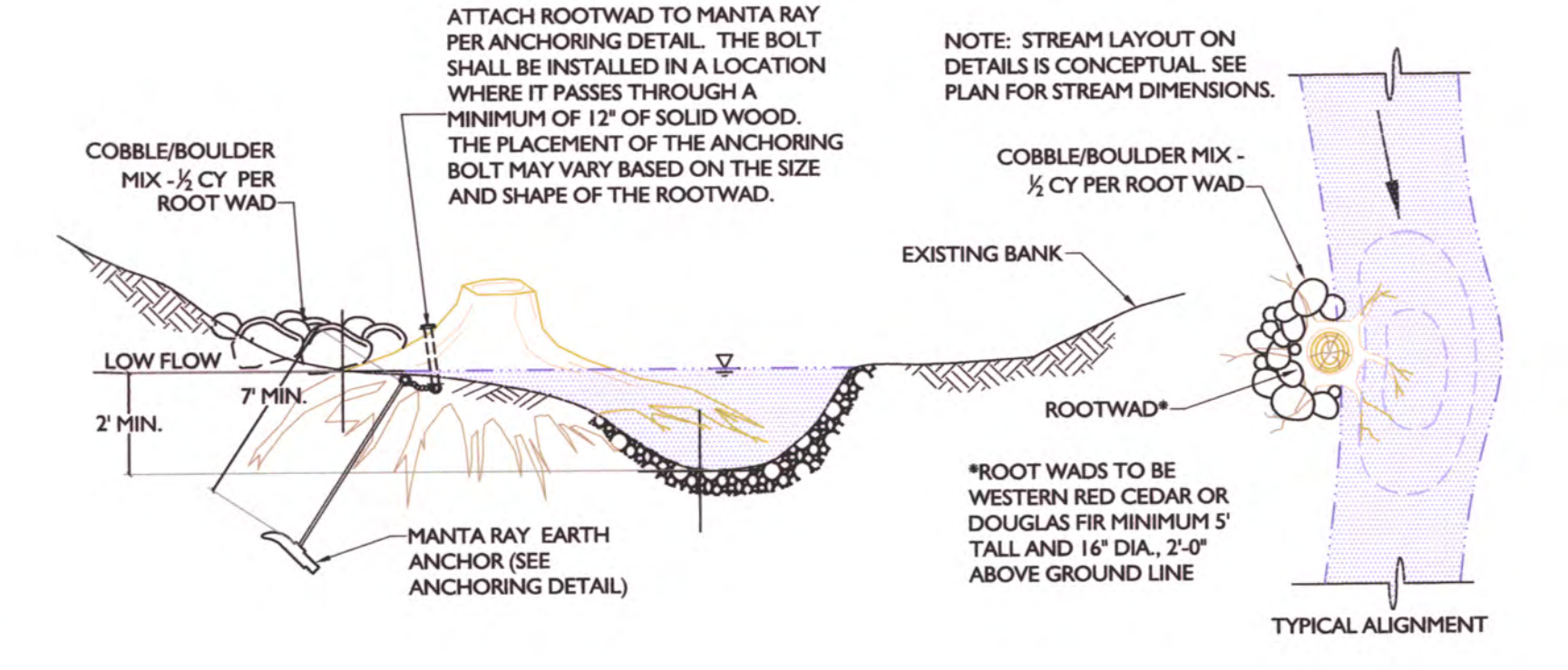
NOTES

1. UPRIGHT SNAGS ARE TO BE PLACED AT THE LOCATIONS SHOWN ON THE PLAN
2. ALL SNAGS SHALL BE WESTERN RED CEDAR OR DOUGLAS-FIR TREES WITH THEIR ROOT WADS AND A SUBSTANTIAL PORTION OF THEIR LIMBS LEFT INTACT. DO NOT TRIM TOPS, DAMAGED OR BROKEN TOPS ARE PREFERRED. PROVIDE LOGS WITH NUMEROUS UNTRIMMED LIMBS. LOGS USED FOR SNAGS MAY BE PARTIALLY HOLLOW AND CONTAIN CAVITIES AS LONG AS THEY ARE GENERALLY SOUND.
3. SNAGS SHALL BE A MINIMUM OF 18 INCHES IN DIAMETER AT GROUND SURFACE WHEN INSTALLED AND SHALL BE PLACED TO A DEPTH INTO THE GROUND EQUAL TO 1/3RD OF THEIR ABOVE-GROUND HEIGHT.
4. SNAGS WITH SUBSTANTIAL ROOT MASSES ATTACHED MAY BE PLACED TO THE DEPTH INDICATED AND BACKFILLED WITH COMPACTED SOIL ONLY UPON APPROVAL OF EACH SNAG INDIVIDUALLY BY THE STREAM/WETLAND CONSULTANT OR OTHER AUTHORIZED OWNERS REPRESENTATIVE.

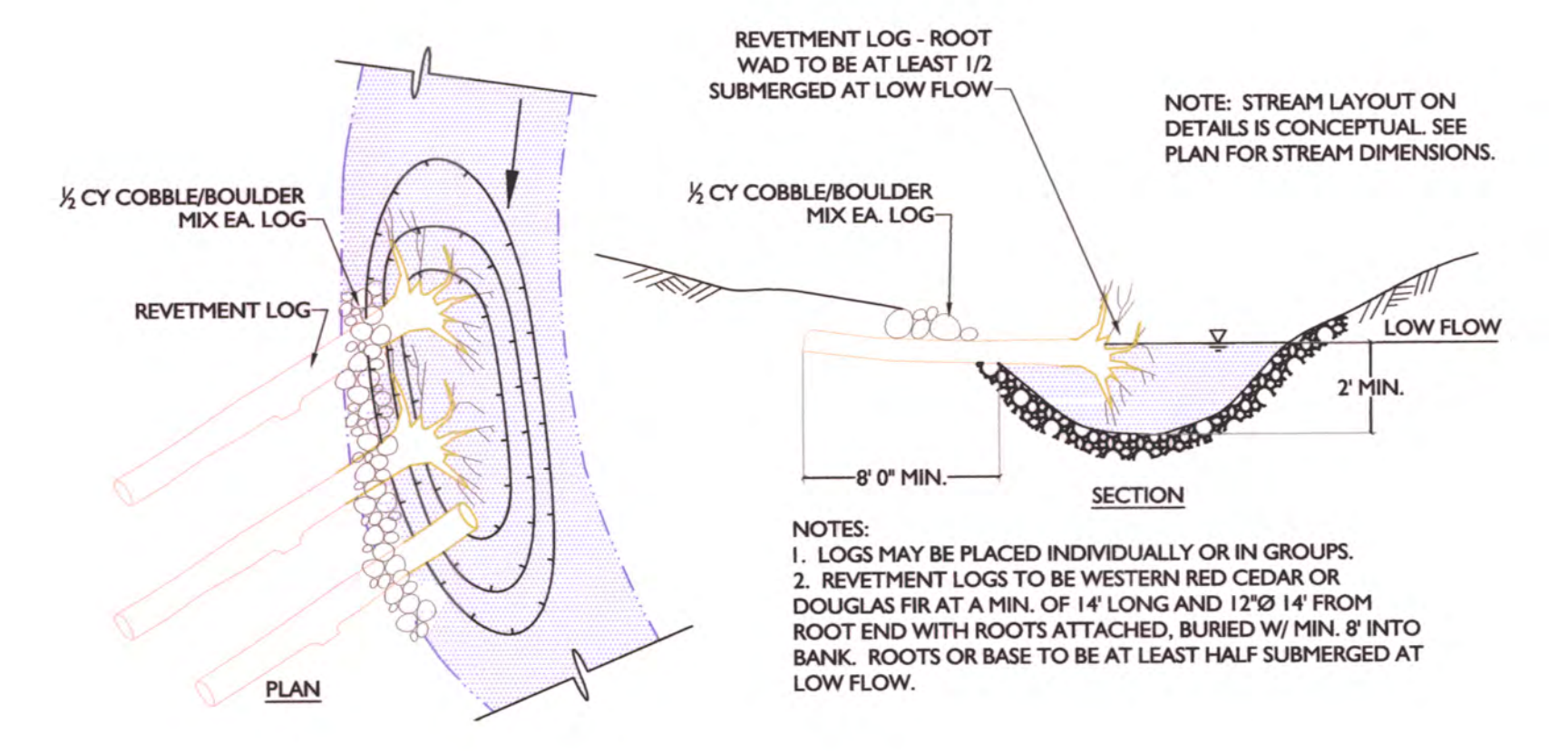
F TYPICAL SNAG DETAIL
NTS



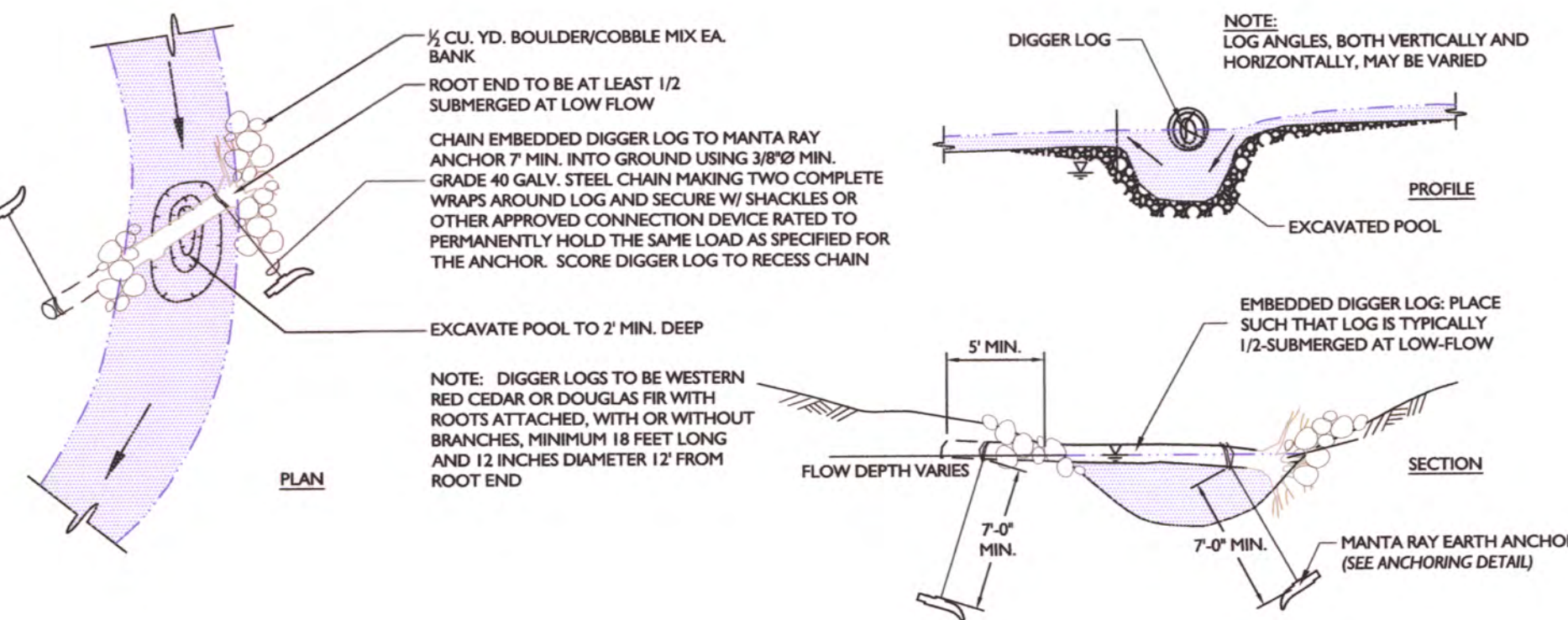
B TYPICAL FALLEN TREE DETAIL
NTS



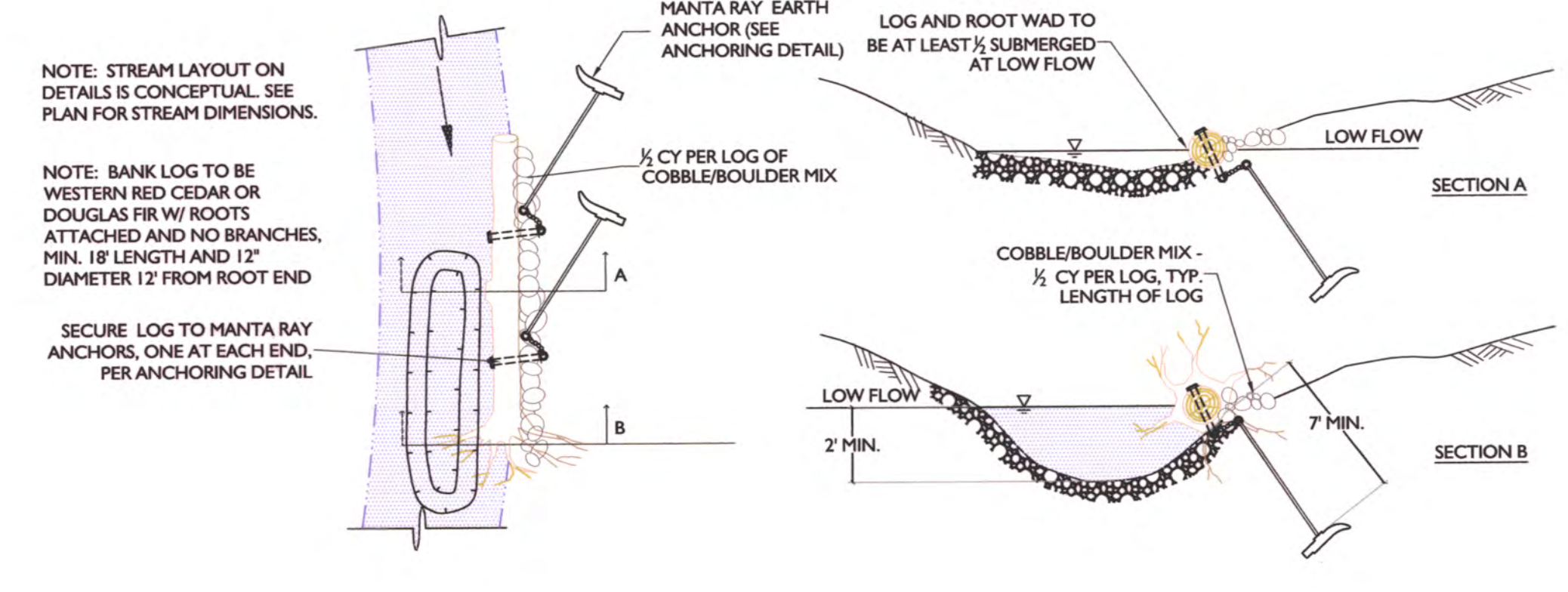
E TYPICAL ROOT WAD DETAIL
NTS



A TYPICAL REVETMENT LOG DETAIL
NTS



D TYPICAL DIGGER LOG DETAIL
NTS



G TYPICAL BANK LOG DETAIL
NTS

NOT FOR CONSTRUCTION
THESE PLANS HAVE BEEN SUBMITTED TO THE APPROPRIATE AGENCIES FOR REVIEW AND APPROVAL UNTIL APPROVED, THESE PLANS ARE:
SUBJECT TO REVISION

CONSTRUCTION SEQUENCE

Note: specifications for items in bold can be found below, under "Material Specifications and Definitions."

Construction activities should occur in the following sequence for each independent section or phase:

- 1) Obtain all necessary easements and access permissions required for all construction.
2) Hold pre-construction meeting with owner or owner's representative.
3) Before beginning construction work related to each new or enhanced stream channel segment, establish clearing limits and define the work area.
4) Install construction entrance(s), silt fencing, any catch basin inserts, and all other temporary erosion control measures, general and site-specific, as noted on the plans and supporting documents or as required by various permits and authorizations.
5) Establish the location of the centerline of the realigned stream channel and the limits of any additional floodplain areas to be excavated.
6) Locate any and all existing utilities within the project area prior to construction.
7) Identify and remove or relocate any structures or facilities within the project area slated for relocation or demolition prior to beginning excavation.
8) Identify areas for storage of topsoil and subsoil material that will be reused.
9) Remove the native topsoil layer (where present) from the to-be-graded portions of the project area.
10) Begin rough grading and excavation activities at the downstream end of each new, relocated channel section.
11) Similarly, for Reach 2, leave similar plugs of undisturbed material between the existing channel and excavated floodplain areas.
12) Complete rough excavation and grading activities for each new Padden Creek channel section and associated floodplain and riparian wetland areas.
13) Place the log and rootwad structures and associated cobble/boulder mix and anchors at the locations in and along the main channel and floodplain.
14) Place the streambed spawning gravel and cobble/boulder mix, meeting the type and gradation given by the specifications.
15) Under the direction of the stream restoration consultant, perform finishing touches on the low-flow channel through the project area.
16) Place a minimum of 8 inches of approved topsoil (Type B) over the area within the grading limit.
17) Remove all traces of blackberry rhizomes and vines in the process of topsoil placement, amendment, and finish grading.

- 18) Any excess stockpiled native or imported topsoil shall be used or disposed of in a manner that does not result in the filling of wetlands.
19) Place a temporary culvert crossing along each new channel section, primarily to allow access to the old channel for filling.
20) For each of the relocated channel sections (Reaches 1 and 3), connect the downstream end of the new channel to the old channel by placing silt fencing along the downstream side of the new channel.
21) Also for each of the relocated sections (Reaches 1 and 3), divert the flow out of the old channel and into the new channel at the upstream diversion point.
22) Fill old channel as shown on plan, generally proceeding from the upstream end towards the downstream end.
23) Once old channel is filled, remove quarry spalls, temporary culvert, and geotextile and excess spawning gravel and/or cobble/boulder mix.
24) Mulch with 3" of straw in all disturbed areas above the channel gravel line as final grading is accomplished.
25) Remove the earthen plugs separating the excavated floodplain areas from the active creek channel along Reach 2 in a manner similar to #20 above.
26) Construct a sandbag and plastic dam across the downstream limit of each affected work area.
27) For pool formation and log structure placement along the existing Padden Creek channel in Reach 2:
A. Under the supervision of the stream restoration consultant, construct a sandbag and plastic dam across the upstream limit of each affected in-stream work area.
B. Construct a sandbag and plastic dam across the downstream limit of each affected work area.
C. Any fish isolated in the localized in-stream work areas will be removed by owner or owner's representative.
D. As feasible, certain of the work areas may instead be isolated by constructing a sand bag and plastic barrier starting upstream of and on the same bank as the proposed work area.
E. Excavate depressions in the stream channel bottom to accommodate the placement of proposed log structures.
F. Install, and anchor where indicated, the in-stream log habitat features in the stream channel according to plan specifications.
G. Place gravel/cobble/boulder mix and streambed gravel as directed for each individual work location.
H. Remove first the downstream sandbag and plastic dam and then the upper dam and all associated flow diversion and sediment control features to allow the stream to flow through the completed local enhancement area.

- 28) Remove all invasive weeds and their attached roots/rhizomes within the planting areas outside of the graded areas.
29) Place salvaged topsoil, conduct any needed finish grading, and spread wood chip mulch at 8" depth across the planting area.
30) Remove ALL temporary erosion and sedimentation control features from within the line of ordinary high water by the latest date allowed by the hydraulic project approval.
31) Remove remaining TESC features, including fencing, construction entrance(s), wheel wash(es), and catch basin protection(s) once construction is complete and site has been stabilized.
32) Contractor shall be responsible for restoring site to pre-construction conditions in WSDOT Right of Way where site is accessed for construction.
33) Place any fencing, trails, signage, or other interpretive or recreational features or facilities associated with the project.

The contractor may submit an alternative work sequence plan which the City may authorize if it concludes that the plan would result in lower impacts to fish resources and water quality.

TIMING RESTRICTION: Construction of the proposed project is estimated to take several weeks. In-water work is proposed to occur during the period extending from July 1 through September 30, or as further restricted by the U.S. Army Corps of Engineers or the Washington Department of Fish and Wildlife (WDFW) in the Hydraulic Project Approval.

MATERIAL SPECIFICATIONS AND DEFINITIONS

Stream restoration consultant: Owner or owner's representative.

Spawning Gravel: Well-graded rounded rock, conforming closely to the following size gradation by weight: < 1/4 inch 15%, 1/4 to 3/8 inch 20%, 3/8 to 1 1/2 inches 25%, 1 1/2 to 3 inches 30%, 3 to 6 inches 10%

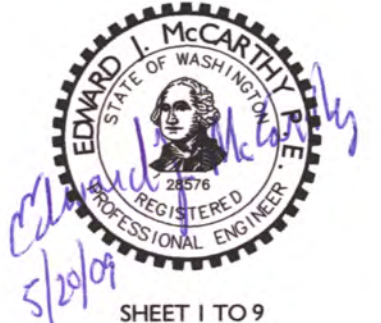
Cobble/Boulder mix: well-graded rounded rock, essentially free from fines, conforming closely to the following size gradation by weight: < 1/4 inch 5%, 1/4 to 3/8 inch 10%, 3/8 to 2 inches 10%, 2 to 4 inches 15%, 4 to 8 inches 20%, 8 to 12 inches 20%, 12 to 18 inches 20%

Anchor: Anchors shall consist of Manta Ray MR-3 earth anchors (Foresight Products, LLC 1-800-325-5360) or equivalent. Anchors to be driven minimum 6 feet (72 inches) into ground (or per manufacturer's recommendations) at an angle approximately 15° to 30° from vertical aimed away from the center of the channel and upstream.

Vegetable compost: Compost shall be Cedar Grove or equal product (Type A) containing 100% composted vegetable matter and no viable weed seeds or parts.

Wood chip mulch: Mulch shall be derived entirely from raw, native, conifer and deciduous species. At least 50% shall be conifer species. No more than 50% shall be solely cedar species. Mulch shall be 'hog fuel size sort' and no single wood chip piece shall be larger than 6 inches.

NOT FOR CONSTRUCTION
THESE PLANS HAVE BEEN SUBMITTED TO THE APPROPRIATE AGENCIES FOR REVIEW AND APPROVAL UNTIL APPROVED, THESE PLANS ARE: SUBJECT TO REVISION



ED McCARTHY, PE, PS (425) 271-5734



PADDEN CREEK IMPROVEMENTS CHANNEL RELOCATION AND ENHANCEMENT PREPARED FOR THE CITY OF BELLINGHAM

OLD FAIRHAVEN PARKWAY BELLINGHAM, WA

Table with 5 columns: NO., DATE, DESCRIPTION, BY, DATE. Rows include 60% REVIEW SET, PERMIT SET, and PERMIT SET WITH STAMP.

SHEET SIZE: ORIGINAL PLAN IS 22' x 34'. SCALE ACCORDINGLY.

PROJECT MANAGER: EM/DI, DESIGNED: GJI/MI, DRAFTED: BL, CHECKED: GW, JOB NUMBER: 061018

DATE: 5/19/2009, FILENAME: 061018SRP-100%-JAWPA.DWG, SHEET 1 TO 9, SHEET NUMBER: 9 OF 13

**PADDEN CREEK IMPROVEMENTS
CHANNEL RELOCATION AND ENHANCEMENT
PREPARED FOR THE CITY OF BELLINGHAM**

OLD FAIRHAVEN PARKWAY
BELLINGHAM, WA

ALL PLANTINGS TO BE PURCHASED AND PLANTED BY OWNER OR OWNERS REPRESENTATIVE.

PLANT LEGEND			
PLANT SPECIES	SIZE / SPACING	QUANTITIES	REMARKS
UPLAND TREES & SHRUBS			
ACER CIRCINATUM / VINE MAPLE	1 GAL / 6'-0" O.C.	TOTAL 2,050	PLANT SAME SPECIES IN LARGE GROUPINGS - 9 TO 12 PLANTS IN EACH GROUP. ADJUST LOCATION TO AVOID STANDING WATER AND EXISTING NATIVE VEGETATION.
ACER MACROPHYLLUM / BIG-LEAF MAPLE	2 GAL / 9'-0" O.C.		
AMELANCHIER ALNFOLIA / SERVICEBERRY	1 GAL / 6'-0" O.C.		
BETULA PAPPYRIFERA / PAPERBARK BIRCH	2 GAL / 9'-0" O.C.		
OEMLERIA CERASIFORMIS / OSOBERY	1 GAL / 6'-0" O.C.		
HOLIDICUS DISCOLOR / OCEAN SPRAY	1 GAL / 6'-0" O.C.		
PSEUDOTSUGA MENZIESII / DOUGLAS FIR	2 GAL / 9'-0" O.C.		
PHILADELPHUS LEWISII / MOCK ORANGE	1 GAL / 6'-0" O.C.		
RUBUS PAVIFLORUS / THIMBLERBERRY	1 GAL / 6'-0" O.C.		
SAMBUCUS RACEMOSA / RED ELDERBERRY	1 GAL / 6'-0" O.C.		
SYMPHORICARPOS ALBUS / SNOWBERRY	1 GAL / 6'-0" O.C.		
RIPARIAN TREES & SHRUBS			
CORNUS STOLONIFERA / RED-TWIG DOGWOOD	1 GAL / 6'-0" O.C.	TOTAL 1,897	PLANT SAME SPECIES IN LARGE GROUPINGS - 9 TO 12 PLANTS IN EACH GROUP. ADJUST LOCATION TO AVOID EXISTING NATIVE VEGETATION.
CRATAEGUS DOUGLASSII / BLACK HAWTHORN	1 GAL / 6'-0" O.C.		
LONICERA INVOLUCRATA / BLACK TWINEBERRY	1 GAL / 6'-0" O.C.		
PHYSCARPUS CAPITATUS / PACIFIC NINEBARK	1 GAL / 6'-0" O.C.		
PICEA SITCHENSIS / SITKA SPRUCE	2 GAL / 9'-0" O.C.		
ROSA PRINCEANA / CLUSTERED ROSE	1 GAL / 6'-0" O.C.		
RUBUS SPECTABILIS / SALMONBERRY	1 GAL / 6'-0" O.C.		
SALIX HOOKERIANA / HOOKERS WILLOW	1 GAL / 6'-0" O.C.		
SALIX LASIANDRA / PACIFIC WILLOW	1 GAL / 6'-0" O.C.		
SALIX SCOULERIANA / SCOULER WILLOW	1 GAL / 6'-0" O.C.		
THUJA PLICATA / WESTERN RED CEDAR	2 GAL / 9'-0" O.C.		
EMERGENTS			
CAREX OBNUTRA / SLOUGH SEDGE	10 IN. CL. POT / 12" O.C.	TOTAL 7,644	PLANT SAME SPECIES IN TRIANGULAR SPACING - 3 TO 6 PLANTS IN EACH GROUP.
JUNCUS ENSFOLIUS / DAGGER-LEAF RUSH	10 IN. CL. POT / 12" O.C.		
JUNCUS EFFUSUS / SOFT RUSH	10 IN. CL. POT / 12" O.C.		
SCIRPUS ACUTUS / HARDSTEM BURRUSH	10 IN. CL. POT / 12" O.C.		

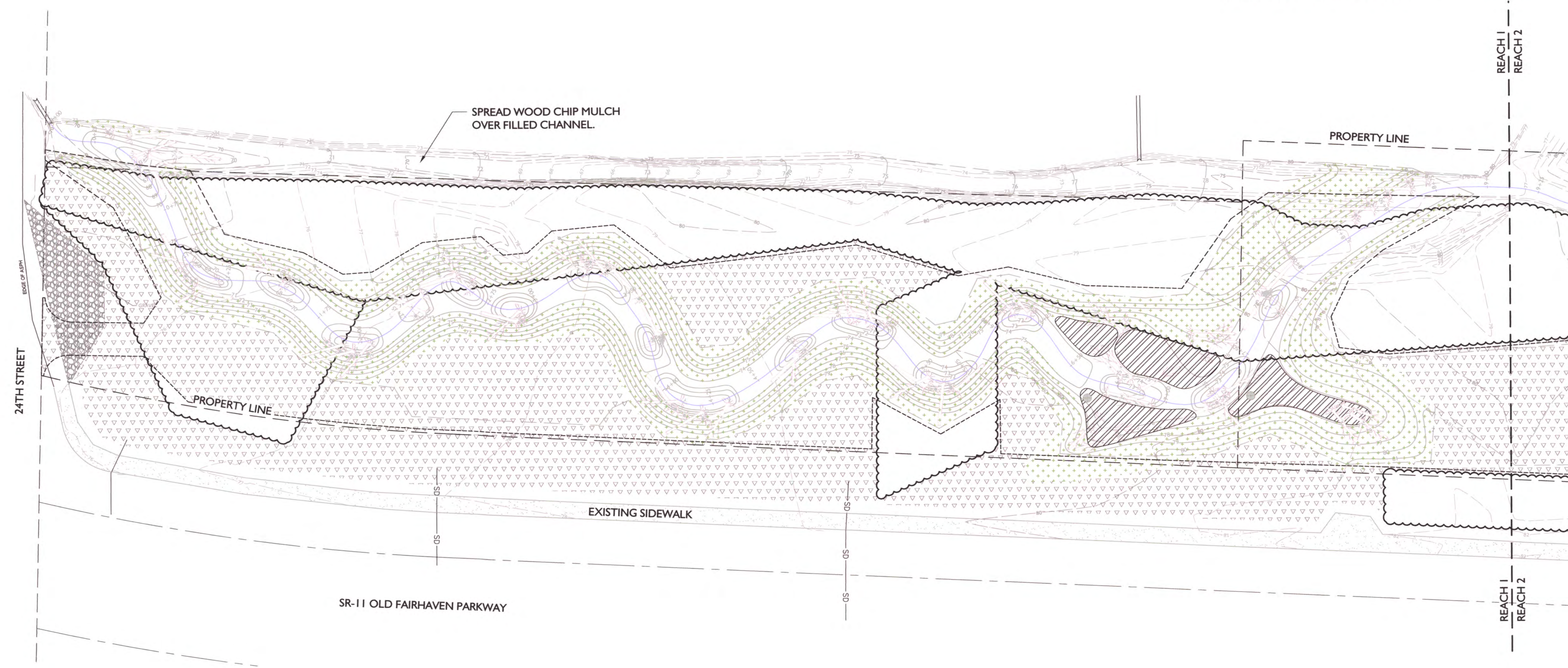
ALL PLANTINGS TO BE PURCHASED AND PLANTED BY OWNER OR OWNERS REPRESENTATIVE.

NOTES FOR CONTRACTOR

- Before final grading is completed, the contractor should inspect **the entire work area** to insure that soils, surface and grades are suitable for planting. At that time, assess soil conditions and if necessary provide amendment in planting areas such that there is a minimum of 20% organic material.
- The contractor is responsible for any adverse drainage conditions that may affect proper plant growth and establishment. Notify the City or City's representative of any poor drainage conditions prior to construction.
- Remove any and all invasive weeds and their roots from the planting area. Species targeted for removal include Himalayan blackberry, English holly, English ivy, Scot's broom, Japanese knotweed, English laurel, and morning glory (hand removal is required within tree protection fence and sensitive areas)
- Loosen any compacted soils in **the entire work area**.
- Amend soil as needed per #2.
- Insure that all finish grades are 1/2" below top of adjacent paved surface.
- Spread topsoil across the entire work area Hydroseed the entire grading area (limit of work) with the Pro-time 840 seed mix listed in the plan specifications (see sheet 9). Seed all bare soil areas along the stream bank. Spread 8" coarse wood chip mulch* across the entire planting area. No further construction activities and compaction are allowed on mulched area.
- The contractor shall prepare and maintain the site to a **ready-to-plant** conditions until final inspection and approval by the owner or owner's representative.

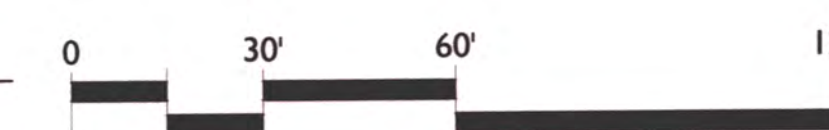
***Wood Chip Mulch**

This item shall consist of furnishing and installing wood chip mulch at locations shown on the plans. Mulch shall be placed in a layer approximately 8 inches thick over the final scarified ground. Mulch shall be derived entirely from raw, native, conifer and deciduous species. At least 50% shall be conifer species. No more than 50% shall be solely cedar species. Mulch shall be 'hog fuel size sort' and no single wood chip piece shall be larger than 6 inches. Mulch shall not contain any demolition wood, creosote, asbestos, plastic or any other deleterious materials.



RESTORATION PLANTING PLAN

SCALE: 1" = 30'-0"



SUBMITTALS & REVISIONS	
NO.	DESCRIPTION
1	60% REVIEW SET
2	PERMIT SET
3	PERMIT SET WITH STAMP

SHEET SIZE:
ORIGINAL PLAN IS 22' x 34'.
SCALE ACCORDINGLY.

PROJECT MANAGER: EM
DESIGNED: GJ/MI
DRAFTED: GL
CHECKED: BW
JOB NUMBER:

061018
SHEET NUMBER:
10 OF 13

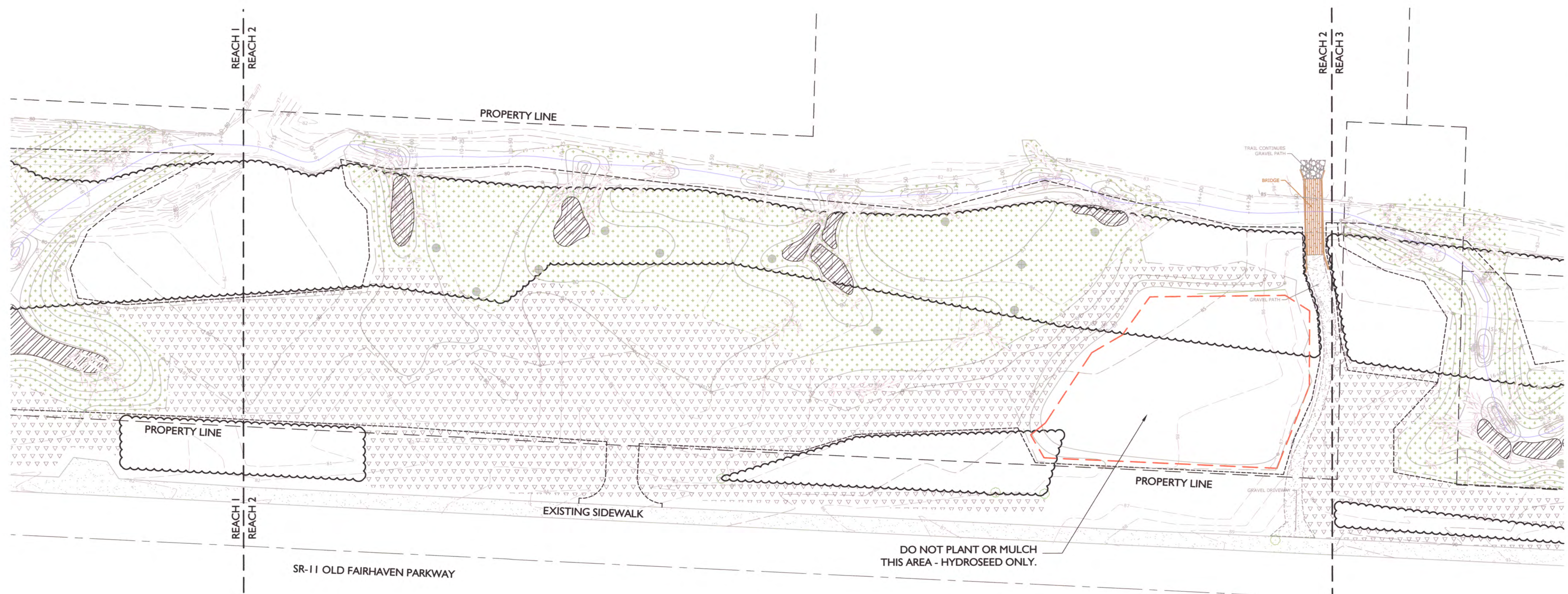
ALL PLANTINGS TO BE PURCHASED AND PLANTED BY OWNER OR OWNERS REPRESENTATIVE.

PLANT LEGEND			
PLANT SPECIES	SIZE / SPACING	QUANTITIES	REMARKS
UPLAND TREES & SHRUBS			
ACER CIRCINATUM / VINE MAPLE	1 GAL / 6'-0" O.C.	TOTAL 2,050	PLANT SAME SPECIES IN LARGE GROUPINGS - 9 TO 12 PLANTS IN EACH GROUP. ADJUST LOCATION TO AVOID STANDING WATER AND EXISTING NATIVE VEGETATION.
ACER MACROPHYLLUM / BIG-LEAF MAPLE	2 GAL / 9'-0" O.C.		
AMELANCHIER ALNIFOLIA / SERVICEBERRY	1 GAL / 6'-0" O.C.		
BETULA PAPPYRIFERA / PAPERBARK BIRCH	2 GAL / 9'-0" O.C.		
OEMLERIA CERASIFORMIS / OSOBERY	1 GAL / 6'-0" O.C.		
HOLIDICUS DISCOLOR / OCEAN SPRAY	1 GAL / 6'-0" O.C.		
PSEUDOTSUGA MENZIESII / DOUGLAS FIR	2 GAL / 9'-0" O.C.		
PHILADELPHUS LEWISII / MOCK ORANGE	1 GAL / 6'-0" O.C.		
RUBUS PAVIFLORUS / THIMBLEBERRY	1 GAL / 6'-0" O.C.		
SAMBUCUS RACEMOSA / RED ELDERBERRY	1 GAL / 6'-0" O.C.		
SYMPHORICARPOS ALBUS / SNOWBERRY	1 GAL / 6'-0" O.C.		
RIPARIAN TREES & SHRUBS			
CORNUS STOLONIFERA / RED-TWIG DOGWOOD	1 GAL / 6'-0" O.C.	TOTAL 1,897	PLANT SAME SPECIES IN LARGE GROUPINGS - 9 TO 12 PLANTS IN EACH GROUP. ADJUST LOCATION TO AVOID EXISTING NATIVE VEGETATION.
CRATAEGUS DOUGLASSII / BLACK HAWTHORN	1 GAL / 6'-0" O.C.		
LONICERA INVOLUCRATA / BLACK TWINEBERRY	1 GAL / 6'-0" O.C.		
PHYSCOCARPUS CAPITATUS / PACIFIC NINEBARK	1 GAL / 6'-0" O.C.		
PICEA SITCHENSIS / SITKA SPRUCE	2 GAL / 9'-0" O.C.		
ROSA PSOCARPA / CLUSTERED ROSE	1 GAL / 6'-0" O.C.		
RUBUS SPECTABILIS / SALMONBERRY	1 GAL / 6'-0" O.C.		
SALIX HOOKERIANA / HOOKERS WILLOW	1 GAL / 6'-0" O.C.		
SALIX LASANDRA / PACIFIC WILLOW	1 GAL / 6'-0" O.C.		
SALIX SCOULEIRIANA / SCOULEIR WILLOW	1 GAL / 6'-0" O.C.		
THUJA PLICATA / WESTERN RED CEDAR	2 GAL / 9'-0" O.C.		
EMERGENTS			
CAREX OBNUITA / SLOUGH SEDGE	10 IN. CU. POTT / 12" O.C.	TOTAL 7,644	PLANT SAME SPECIES IN TRIANGULAR SPACING - 3 TO 4 PLANTS IN EACH GROUP.
JUNCUS ENSIFOLIUS / DAGGER-LEAF RUSH	10 IN. CU. POTT / 12" O.C.		
JUNCUS EFFUSUS / SOFT RUSH	10 IN. CU. POTT / 12" O.C.		
SCIRPUS ACUTUS / HARDSTEM BURRUSH	10 IN. CU. POTT / 12" O.C.		

ALL PLANTINGS TO BE PURCHASED AND PLANTED BY OWNER OR OWNERS REPRESENTATIVE.

NOTES FOR CONTRACTOR

- Before final grading is completed, the contractor should inspect **the entire work area** to insure that soils, surface and grades are suitable for planting. At that time, assess soil conditions and if necessary provide amendment in planting areas such that there is a minimum of 20% organic material.
 - Note: The contractor is responsible for any adverse drainage conditions that may affect proper plant growth and establishment. Notify the City or City's representative of any poor drainage conditions prior to construction.
 - Remove any and all invasive weeds and their roots from the planting area. Species targeted for removal include Himalayan blackberry, English holly, English ivy, Scot's broom, Japanese knotweed, English laurel, and morning glory (hand removal is required within tree protection fence and sensitive areas)
 - Loosen any compacted soils in **the entire work area**.
 - Amend soil as needed per #2.
 - Insure that all finish grades are 1/2" below top of adjacent paved surface.
 - Spread topsoil across the entire work area Hydroseed the entire grading area (limit of work) with the Pro-time 840 seed mix listed in the plan specifications (see sheet 9). Seed all bare soil areas along the stream bank. Spread 8" coarse wood chip mulch* across the entire planting area. No further construction activities and compaction are allowed on mulched area.
 - The contractor shall prepare and maintain the site to a **ready-to-plant** conditions until final inspection and approval by the owner or owner's representative.
- *Wood Chip Mulch
This item shall consist of furnishing and installing wood chip mulch at locations shown on the plans. Mulch shall be placed in a layer approximately 8 inches thick over the final scarified ground. Mulch shall be derived entirely from raw, native, conifer and deciduous species. At least 50% shall be conifer species. No more than 50% shall be solely cedar species. Mulch shall be 'hog fuel size sort' and no single wood chip piece shall be larger than 6 inches. Mulch shall not contain any demolition wood, creosote, asbestos, plastic or any other deleterious materials.



RESTORATION PLANTING PLAN

SCALE: 1" = 30'-0"



**PADDEN CREEK IMPROVEMENTS
CHANNEL RELOCATION AND ENHANCEMENT
PREPARED FOR THE CITY OF BELLINGHAM**

OLD FAIRHAVEN PARKWAY
BELLINGHAM, WA

SUBMITTALS & REVISIONS	
NO.	DESCRIPTION
1	60% REVIEW SET
2	PERMIT SET
3	PERMIT SET WITH STAMP

SHEET SIZE:
ORIGINAL PLAN IS 22" x 34"
SCALE ACCORDINGLY.

PROJECT MANAGER: EM
DESIGNED: GJ/MI
DRAFTED: GL
CHECKED: BW
JOB NUMBER:

061018
SHEET NUMBER:
11 OF 13

**PADDEN CREEK IMPROVEMENTS
CHANNEL RELOCATION AND ENHANCEMENT
PREPARED FOR THE CITY OF BELLINGHAM**

OLD FAIRHAVEN PARKWAY
BELLINGHAM, WA

ALL PLANTINGS TO BE PURCHASED AND PLANTED BY OWNER OR OWNERS REPRESENTATIVE.

PLANT LEGEND			
PLANT SPECIES	SIZE / SPACING	QUANTITIES	REMARKS
UPLAND TREES & SHRUBS			
ACER CIRCINATUM / VINE MAPLE	1 GAL / 6'-0" O.C.	TOTAL 2,050	PLANT SAME SPECIES IN LARGE GROUPINGS - 9 TO 12 PLANTS IN EACH GROUP. ADJUST LOCATION TO AVOID STANDING WATER AND EXISTING NATIVE VEGETATION.
ACER MACROPHYLLUM / BIG-LEAF MAPLE	2 GAL / 9'-0" O.C.		
AMELANCHIER ALNIFOLIA / SERVICEBERRY	1 GAL / 6'-0" O.C.		
BETULA PAPIRIFERA / PAPERBARK BIRCH	2 GAL / 9'-0" O.C.		
OEMLERIA CERASIFORMIS / OSOBERY	1 GAL / 6'-0" O.C.		
HOLODICUS DISCOLOR / OCEAN SPRAY	1 GAL / 6'-0" O.C.		
PSEUDOTSUGA MENZIESII / DOUGLAS FIR	2 GAL / 9'-0" O.C.		
PHILADELPHUS LEWISII / MOCK ORANGE	1 GAL / 6'-0" O.C.		
RUBUS PAVIFLORUS / THIMBLEBERRY	1 GAL / 6'-0" O.C.		
SAMBUCUS RACEMOSA / RED ELDERBERRY	1 GAL / 6'-0" O.C.		
SYMPHORICARPOS ALBUS / SNOWBERRY	1 GAL / 6'-0" O.C.		
RIPARIAN TREES & SHRUBS			
CORNUS STOLONIFERA / RED-TWIG DOGWOOD	1 GAL / 6'-0" O.C.	TOTAL 1,897	PLANT SAME SPECIES IN LARGE GROUPINGS - 9 TO 12 PLANTS IN EACH GROUP. ADJUST LOCATION TO AVOID EXISTING NATIVE VEGETATION.
GRATEGUS DOUGLASSII / BLACK HAWTHORN	1 GAL / 6'-0" O.C.		
LONICERA INVOLUCRATA / BLACK TWINBERRY	1 GAL / 6'-0" O.C.		
PHYSCARPUS CAPITATUS / PACIFIC NINEBARK	1 GAL / 6'-0" O.C.		
PICEA SITCHENSIS / SITKA SPRUCE	2 GAL / 9'-0" O.C.		
ROSA PROCARPA / CLUSTERED ROSE	1 GAL / 6'-0" O.C.		
RUBUS SPECTABILIS / SALMONBERRY	1 GAL / 6'-0" O.C.		
SALIX HOOKERIANA / HOOKERS WILLOW	1 GAL / 6'-0" O.C.		
SALIX LASANDRIA / PACIFIC WILLOW	1 GAL / 6'-0" O.C.		
SALIX SCULERIANA / SCULER WILLOW	1 GAL / 6'-0" O.C.		
THUJA PLICATA / WESTERN RED CEDAR	2 GAL / 9'-0" O.C.		
EMERGENTS			
CAREX OBUTRA / SLOUGH SEDGE	10 IN. CL. POT/ 12" O.C.	TOTAL 7,644	PLANT SAME SPECIES IN TRIANGULAR SPACING - 3 TO 6 PLANTS IN EACH GROUP.
JUNCUS ENSFOLIUS / DAGGER-LEAF RUSH	10 IN. CL. POT/ 12" O.C.		
JUNCUS EFFUSUS / SOFT RUSH	10 IN. CL. POT/ 12" O.C.		
SCIRPUS ACUTUS / HARDSTEM BURRUSH	10 IN. CL. POT/ 12" O.C.		

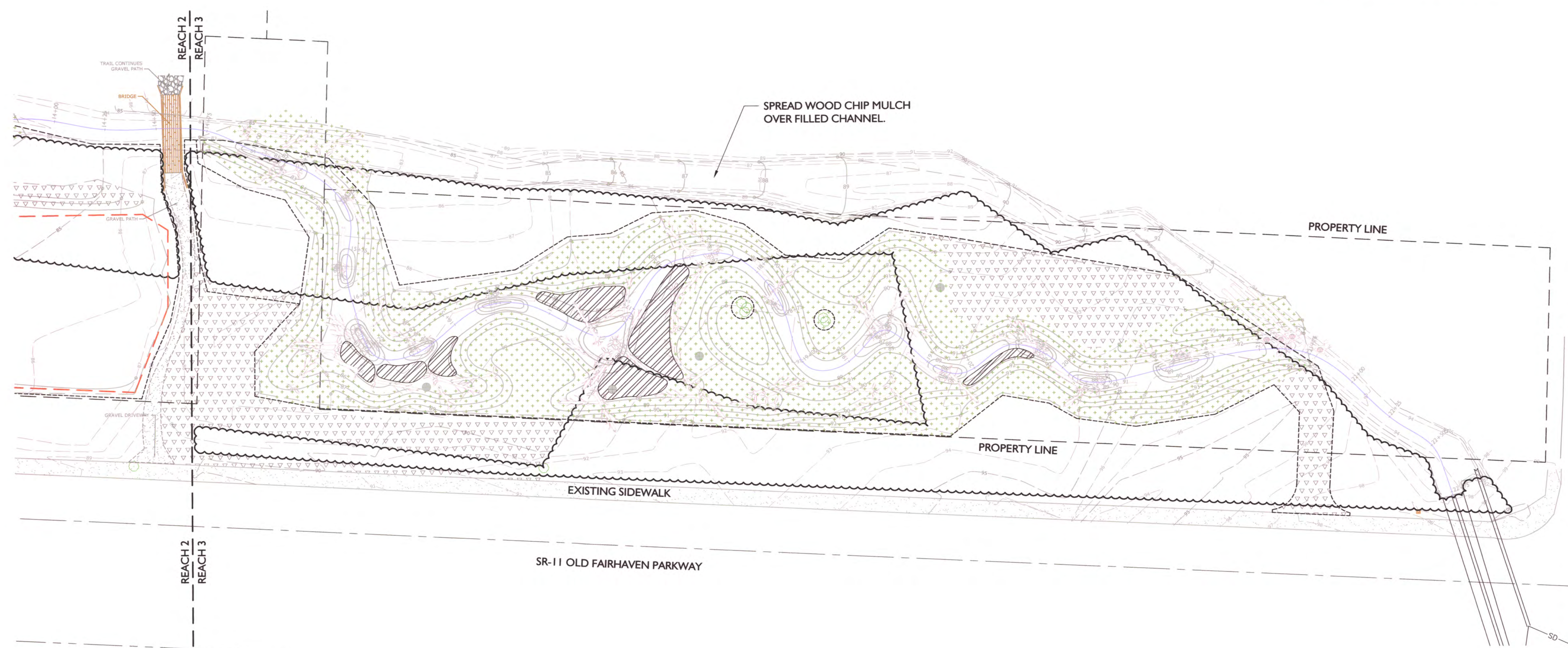
ALL PLANTINGS TO BE PURCHASED AND PLANTED BY OWNER OR OWNERS REPRESENTATIVE.

NOTES FOR CONTRACTOR

- Before final grading is completed, the contractor should inspect **the entire work area** to insure that soils, surface and grades are suitable for planting. At that time, assess soil conditions and if necessary provide amendment in planting areas such that there is a minimum of 20% organic material.
- Note: The contractor is responsible for any adverse drainage conditions that may affect proper plant growth and establishment. Notify the City or City's representative of any poor drainage conditions prior to construction.
- Remove any and all invasive weeds and their roots from the planting area. Species targeted for removal include Himalayan blackberry, English holly, English ivy, Scot's broom, Japanese knotweed, English laurel, and morning glory (hand removal is required within tree protection fence and sensitive areas)
- Loosen any compacted soils in **the entire work area**.
- Amend soil as needed per #2.
- Insure that all finish grades are 1/2" below top of adjacent paved surface.
- Spread topsoil across the entire work area Hydroseed the entire grading area (limit of work) with the Pro-time 840 seed mix listed in the plan specifications (see sheet 9). Seed all bare soil areas along the stream bank. Spread 8" coarse wood chip mulch* across the entire planting area. No further construction activities and compaction are allowed on mulched area.
- The contractor shall prepare and maintain the site to a **ready-to-plant** conditions until final inspection and approval by the owner or owner's representative.

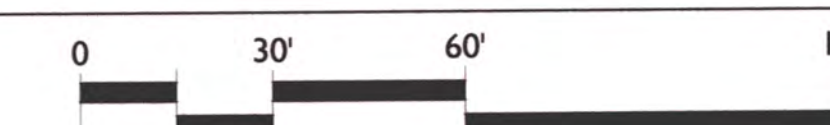
***Wood Chip Mulch**

This item shall consist of furnishing and installing wood chip mulch at locations shown on the plans. Mulch shall be placed in a layer approximately 8 inches thick over the final scarified ground. Mulch shall be derived entirely from raw, native, conifer and deciduous species. At least 50% shall be conifer species. No more than 50% shall be solely cedar species. Mulch shall be 'hog fuel size sort' and no single wood chip piece shall be larger than 6 inches. Mulch shall not contain any demolition wood, creosote, asbestos, plastic or any other deleterious materials.



RESTORATION PLANTING PLAN

SCALE: 1" = 30'-0"



SUBMITTALS & REVISIONS	
NO.	DESCRIPTION
1	60% REVIEW SET
2	PERMIT SET
3	PERMIT SET WITH STAMP

SHEET SIZE:
ORIGINAL PLAN IS 22' x 34'.
SCALE ACCORDINGLY.

PROJECT MANAGER: EM
DESIGNED: GJ/MI
DRAFTED: GL
CHECKED: BW
JOB NUMBER:

061018
SHEET NUMBER:
12 OF 13

MONITORING AND MAINTENANCE

Performance Standards

The following objectives and performance standards have been established to measure the success of this plan.

Objective 1: The in-stream woody debris shall remain as installed. Normal desirable and expected changes in the stream channel and its substrate are expected and include the formation of scour pools, riffles and gravel tail outs in the vicinity of each structure. Some channel migration is expected over time, but undue sideslope scour shall not occur.

- Performance Standard: For five years after enhancement plan implementation, all of the woody debris shall remain in place as specified on the enhancement plan, and any channel migration will remain within the established floodplain area.

Objective 2: The installed supplemental gravel shall contribute to added streambed complexity by forming riffles.

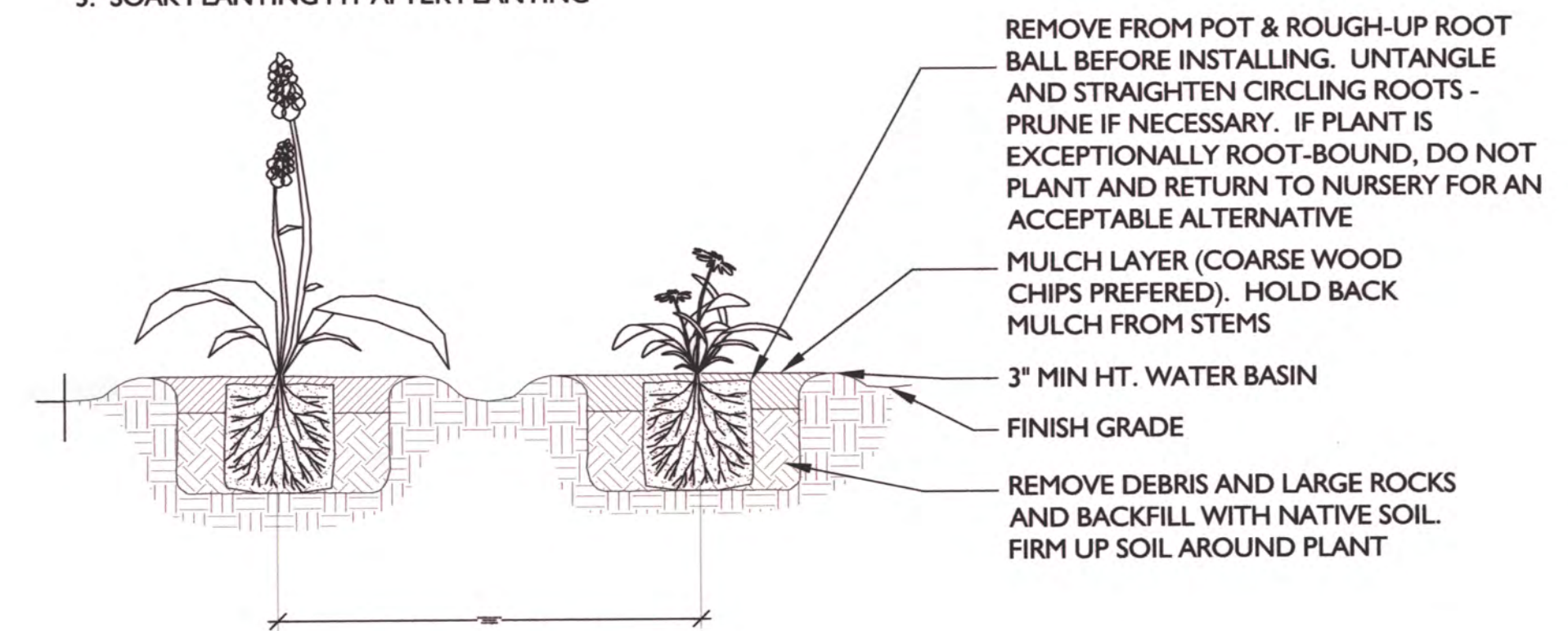
- Performance Standard: For five years after enhancement plan implementation, supplemental gravels shall continue to form riffles suitable for salmonid fish spawning and aquatic insect production. Riffles shall not become "notched" by eroding a narrow, distinct and abrupt channel through the supplemental gravel, resulting in incised channel sections and/or drained pools upstream.

The stream channel and its constructed in-stream habitat features including the log structures shall also be assessed annually for five years following construction in the spring or early summer to evaluate project consistency with Objectives 2 and 3 above. Specifically, parameters to be monitored and reported include depth and quality of pools formed and maintained, substrate and riffle characteristics, erosion and bank condition, depositional patterns, presence of non-natural litter and debris, and large woody debris position and condition. Stream channel, stream bank, and log structure functioning will be assessed and any maintenance or repairs that would need to be done during the upcoming low-flow season will be identified. Examples of stream channel maintenance or repair might include stabilizing any unduly eroding streambanks or securing any logs that may threaten to be washed downstream where they could cause problems at road crossings.

CONTINGENCY AND MANAGEMENT PLANS

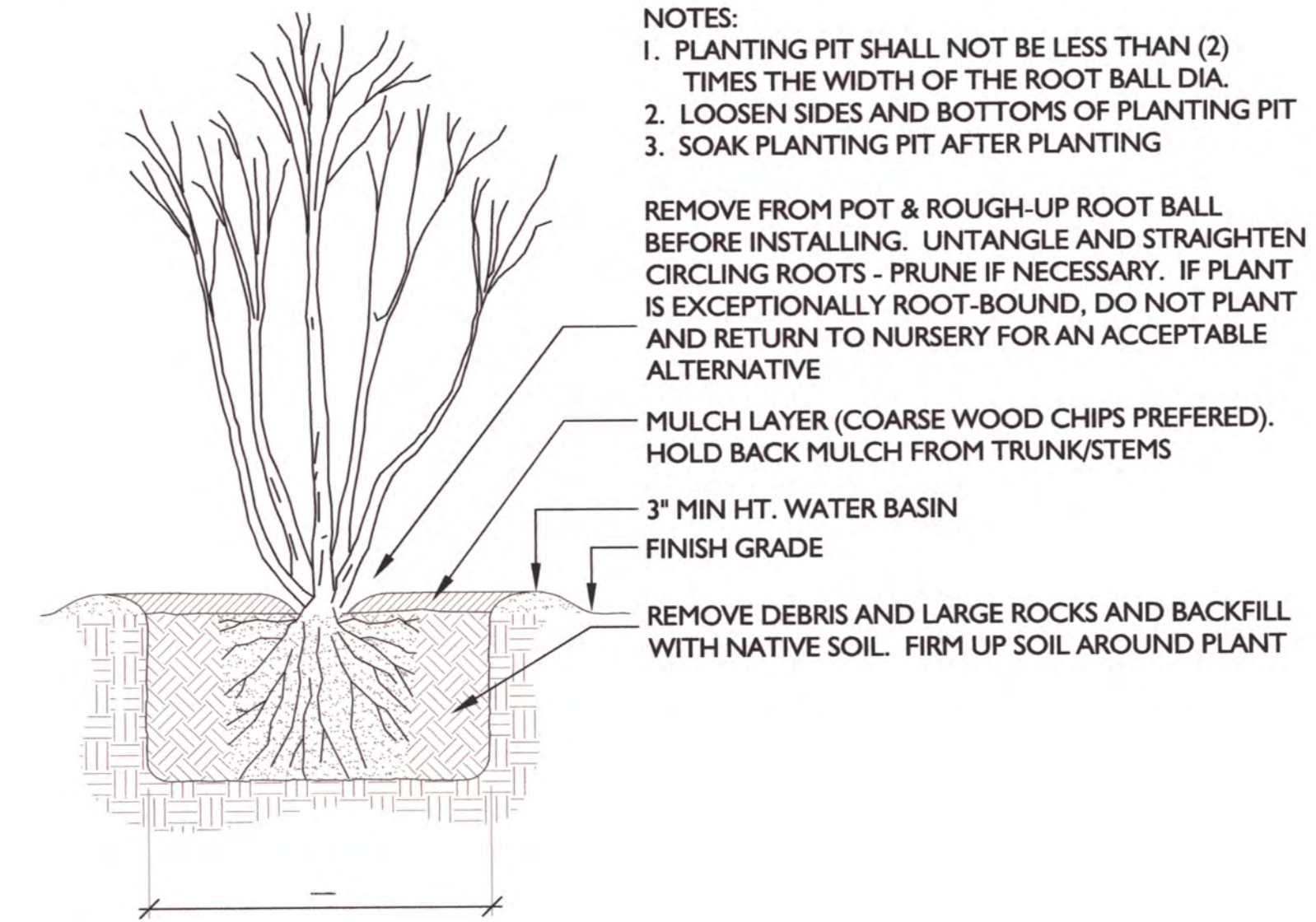
As described above, the constructed in-stream habitat features including the log structures will be inspected in the spring once each year for five years following construction to identify any maintenance or repairs that would need to be done during the upcoming low-flow season. Examples of stream channel maintenance or repair might be implemented as contingencies include stabilizing any unduly eroding streambanks or securing any logs that may threaten infrastructure farther downstream.

- NOTES:
 1. PLANTING PIT SHALL NOT BE LESS THAN (2) TIMES THE WIDTH OF THE ROOT BALL DIA.
 2. LOOSEN SIDES AND BOTTOMS OF PLANTING PIT
 3. SOAK PLANTING PIT AFTER PLANTING



A GROUNDCOVERS AND PERENNIALS PLANTING DETAIL

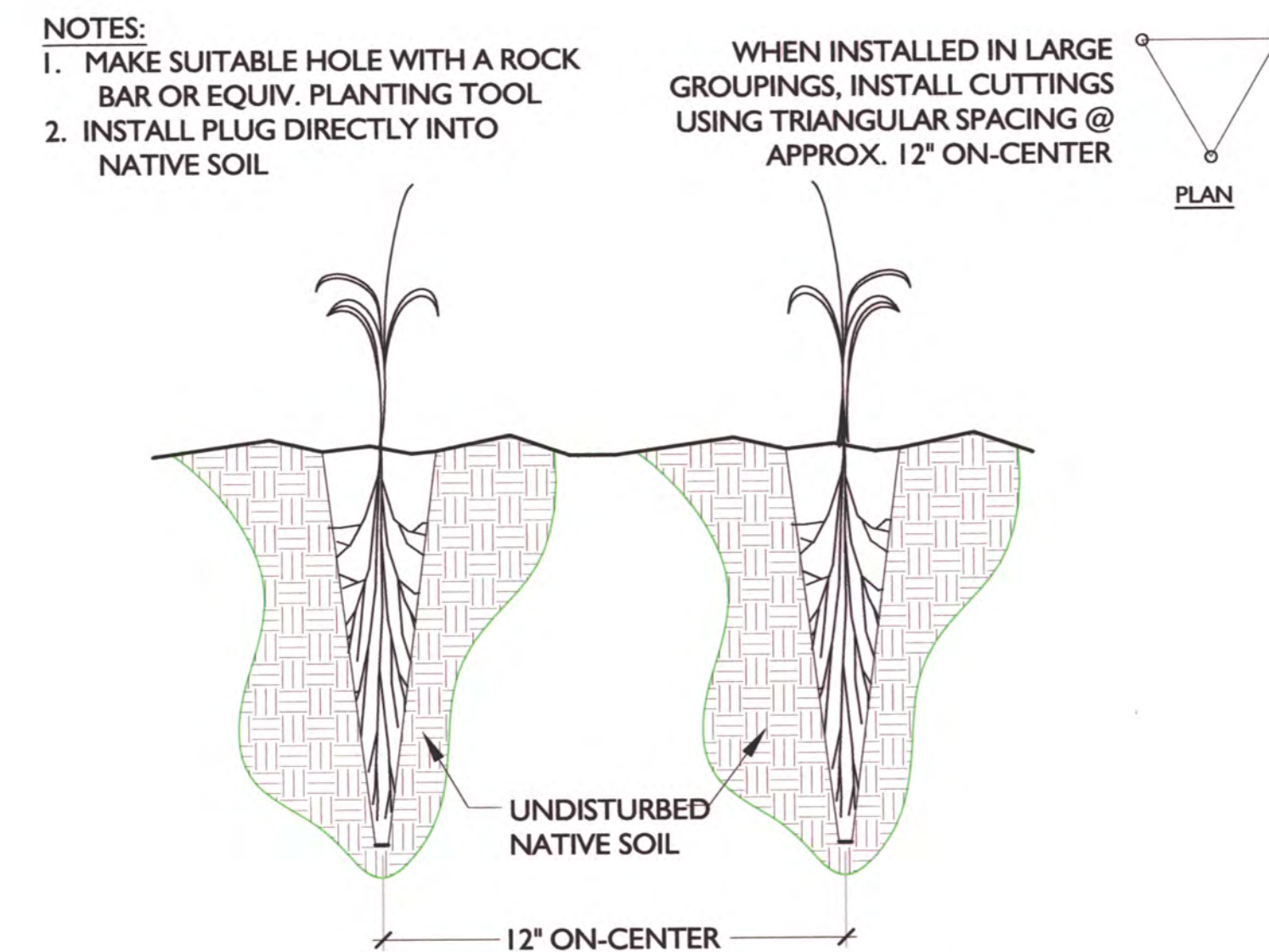
NTS



- NOTES:
 1. PLANTING PIT SHALL NOT BE LESS THAN (2) TIMES THE WIDTH OF THE ROOT BALL DIA.
 2. LOOSEN SIDES AND BOTTOMS OF PLANTING PIT
 3. SOAK PLANTING PIT AFTER PLANTING

B TREES AND SHRUBS PLANTING DETAIL

NTS



C GROUNDCOVERS AND PERENNIALS PLANTING DETAIL

NTS



750 Sixth Street South
Kirkland WA 98033

p 425.822.5242 f 425.827.8136
www.watershedco.com

Science & Design

PADDEN CREEK IMPROVEMENTS
CHANNEL RELOCATION AND ENHANCEMENT
PREPARED FOR THE CITY OF BELLINGHAM

OLD FAIRHAVEN PARKWAY
 BELLINGHAM, WA

SUBMITTALS & REVISIONS		BY	DATE
NO.	DESCRIPTION	GI	
1	60% REVIEW SET	EM/MI	
2	PERMIT SET	GL	
3	PERMIT SET WITH STAMP	EM/MI	

SHEET SIZE:
 ORIGINAL PLAN IS 22" x 34".
 SCALE ACCORDINGLY.

PROJECT MANAGER: EM
 DESIGNED: GJ/MI
 DRAFTED: GL
 CHECKED: BW

JOB NUMBER:
 061018
 SHEET NUMBER:
 13 OF 13