

CITY OF DULUTH

DEPARTMENT OF PUBLIC WORKS AND UTILITIES ENGINEERING DIVISION

PLAN SYMBOLS

-  PROPERTY LINES
-  EXISTING CONTOUR LINES
-  TRAIL CONSTRUCTION TYPE "A" CENTER LINE OF PROPOSED 2-WAY TRAIL CORRIDOR
-  TRAIL CONSTRUCTION TYPE "A" CENTER LINE OF PROPOSED 1-WAY TRAIL CORRIDOR
-  TRAIL CONSTRUCTION TYPE "B"
-  TRAIL CONSTRUCTION TYPE "C"
-  POSSIBLE BERM OR SWITCHBERM LOCATIONS
-  BRIDGE, BOARDWALK, OR ARMORING
-  TRAIL MARKER OR OTHER SIGN LOCATION (NIC)
-  TRAIL MAP SIGN LOCATION (NIC)
-  KIOSK LOCATION (NIC)

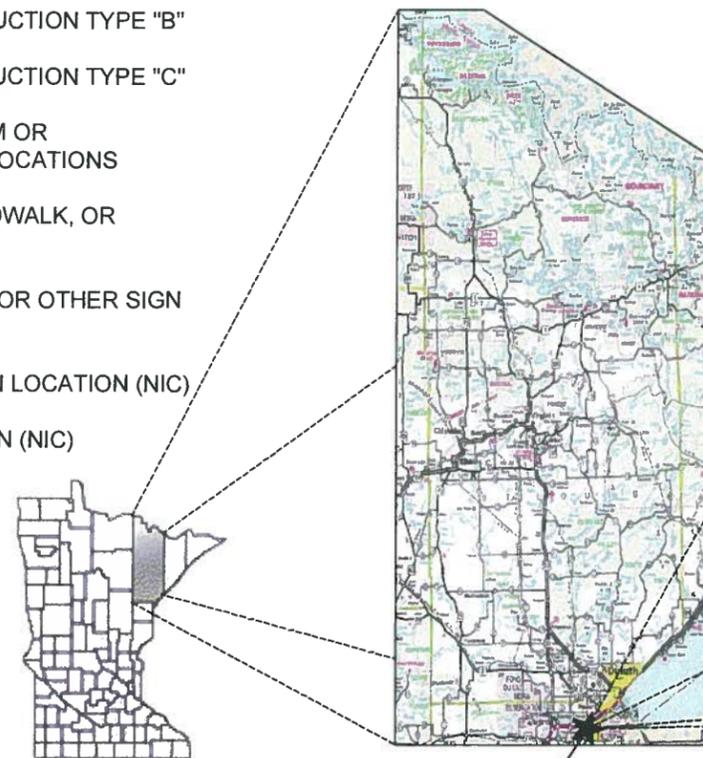
CONSTRUCTION PLANS FOR: CITY OF DULUTH TRAVERSE TRAIL - PHASE II MISSION CREEK

CITY PROJECT NO. 1323



LENGTH SUMMARY:

PHASE 1 (NIC):	31,321 LF (±5.9 MILES)
PHASE 2 (BASE BID):	26,345 LF (±5.0 MILES)
PHASE 2 (ALT #1):	9,561 LF (±1.8 MILES)
FUTURE PHASES (NIC):	47,093 LF (±9.0 MILES)
GROSS LENGTH:	114,320 LF (±21.7 MILES)



PROJECT LOCATION MAP

NOT TO SCALE



KEY PLAN

NOT TO SCALE

GOVERNING SPECIFICATIONS

THE 2005 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN.
AVAILABLE AT: <http://www.dot.state.mn.us/pre-letting/spec/index.html>

ALL TRAFFIC CONTROL DEVICES AND SIGNING SHALL CONFORM TO THE MN MUTCD, INCLUDING THE FIELD MANUAL DATED JANUARY 2014.
AVAILABLE AT: <http://www.dot.state.mn.us/trafficeng/pub/fieldmanual2011/index.html>

THE 2013 EDITION OF THE CITY OF DULUTH PUBLIC WORKS AND UTILITIES DEPARTMENT STANDARD CONSTRUCTION SPECIFICATIONS AND SUPPLEMENTS OR ADDENDUMS SHALL APPLY. ARCHITECTURAL RESOURCES / COGGS / IMBA TRAIL SPECIFICATION SHALL BE THE GOVERNING SPECIFICATIONS.

INDEX

SHEET NO.	DESCRIPTION
1	TITLE SHEET & INDEX MAP
2	TRAIL LOCATOR MAP
3-4	TRAIL SECTION SHEET LOCATOR MAP
5	TYPICAL TRAIL CROSS SECTION
6	TYPICAL TRAIL CROSS SECTIONS (TYPES A-C)
7	TRAIL ALIGNMENT DETAILS
8	SWPPP DETAILS
9	TRAIL DETAILS
10-11	WOOD - TRAIL FEATURE DETAILS
12-50	TRAIL PLANS

THIS PLAN CONTAINS 50 SHEETS

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MINNESOTA.

JAMES M. SHOBERG
LANDSCAPE ARCHITECT (TYPED OR PRINTED NAME)


LANDSCAPE ARCHITECT

03/27/14 DATE 45577 REG. NO.

CITY APPROVAL

 3/28/14
APPROVED CHIEF ENGINEER OF TRANSPORTATION DATE

 3/29/14
APPROVED CHIEF ENGINEER OF UTILITIES DATE

 3/28/14
APPROVED CITY ENGINEER DATE



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DULUTH TRAVERSE TRAIL MISSION CREEK PHASE II DULUTH, MINNESOTA

PROJECT NO. 12-039.1

DATE: MAR-27-2014

DRAWN BY: TTP

REVISIONS:

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JAMES M. SHOBERG 45577
LANDSCAPE ARCHITECT REG. NO.

COVER

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY LEVEL D. THIS QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA".

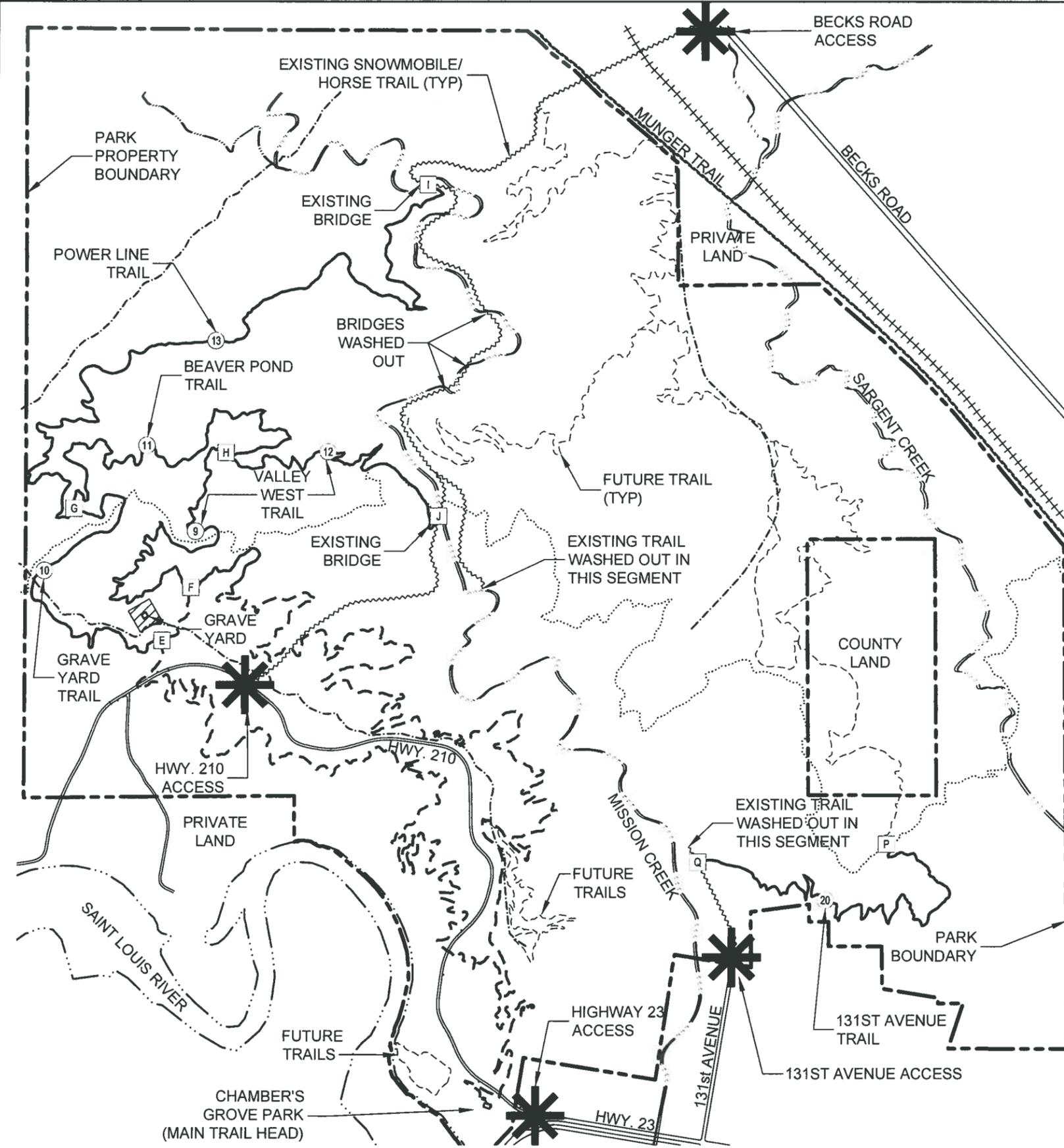
WARNING: LOCATION OF UNDERGROUND UTILITIES TO BE VERIFIED BY CONTRACTOR. CALL BEFORE DIGGING. GOPHER STATE ONE CALL 1-800-252-1166 REQUIRED BY LAW

CITY OF DULUTH PROJECT NO. 1323

DRAWN BY: TTP

SHEET NO. 1 OF 50

1



TRAIL CONSTRUCTION NOTES:

- ALL TRAILS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE SPECIFICATIONS AND THE "TYPICAL TRAIL CROSS SECTION AND TRAIL CROSS SECTION TYPES "A, B & C" AS SHOWN ON SHEET 5 & 6, TRAIL ALIGNMENT PLANS 12 THROUGH 50, AND OTHER REQUIREMENTS AND DETAILS ON SHEETS 7 THROUGH 11.

LEGEND

	EXISTING ROAD
	EXISTING HIKING TRAIL
	EXISTING SNOWMOBILE/HORSE TRAIL
	CREEK
	INTERSECTION MARKER
	TRAIL SEGMENT MARKER
	PROPOSED TRAILS (SEGMENTS 9, 10, 11, 12, 13, 20)
	FUTURE TRAILS (NOT IN CONTRACT)
	EXISTING MOUNTAIN BIKE TRAILS (NOT IN CONTRACT)
	PARK BOUNDARY
	EXISTING MUNGER PAVED BIKE TRAIL
	EXISTING ATV TRAIL

EXISTING DATA NOTES:

EXISTING TOPOGRAPHIC INFORMATION IS BASED ON ONE FOOT INTERVAL LIDAR DATA PROVIDED BY ST LOUIS COUNTY THAT WAS FLOWN THE THE SPRING OF 2011.

ALL OTHER EXISTING CONDITIONS ARE "TRACED" FROM AERIAL PHOTOGRAPHY. THEY ARE NOT TO BE CONSIDERED ACCURATE AND ARE PROVIDED AS A CONVENIENCE TO THE CONTRACTOR.

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO FIELD VERIFY EXISTING CONDITIONS AND NOTIFY OWNER OF ANY DISCREPANCIES PRIOR TO COMMENCING WORK.

LANDSLIDES MAY BE ENCOUNTERED IN THE TRAIL CORRIDOR DUE TO A FLOOD THE SPRING OF 2012. KNOWN LANDSLIDES ARE IDENTIFIED AND APPROXIMATELY LOCATED IN THE PLANS. WHEN LANDSLIDES ARE ENCOUNTERED AND THE TRAIL MUST TRAVERSE THROUGH THE CONTRACTOR IS TO CONSULT WITH THE OWNER PRIOR TO CONSTRUCTION. CONSTRUCTION THROUGH LANDSLIDES IS INCLUDED IN THE CONTRACTORS UNIT BID PRICE FOR ALL TRAIL TYPES. ADDITIONAL EROSION CONTROL BEST MANAGEMENT PRACTICE (BMP) MEASURES MAY NEED TO BE IMPLEMENTED FOR LANDSLIDE AREAS AND WILL BE PAID BASED ON THE CONTRACTORS UNIT BID PRICE FOR BMP'S.

LOCATOR MAP
NOT TO SCALE



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DULUTH TRAVERSE TRAIL MISSION CREEK PHASE II
DULUTH, MINNESOTA

PROJECT NO.:	12-039.1
DATE:	MAR-27-2014
DRAWN BY:	TTP
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JAMES M. SPOBERG 45577
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TRAIL LOCATOR MAP

GRAVE YARD TRAIL PROJECT #1:
 TRAIL SEGMENT 10 = GREEN TRADITIONAL (2 WAY)
 GROSS LENGTH SUMMARY: ±4,355 LF (±0.8 MILES)

TRAIL SLOPE ANALYSIS - GRAVE YARD			
SLOPE RANGE	TYPE A 0-15%	TYPE B 16-60%	TYPE C 61+%
LENGTH	40 LF	4,315 LF	0 LF
PERCENT OF TRAIL	0.9%	99.1%	0.0%

NOTE:
 CONTRACTOR CANNOT INVOICE FOR BOTH TRAIL CONSTRUCTION, TYPES A, B & C, AND CONSTRUCTED FEATURES OF A GIVEN LINEAR FOOT OF TRAIL.

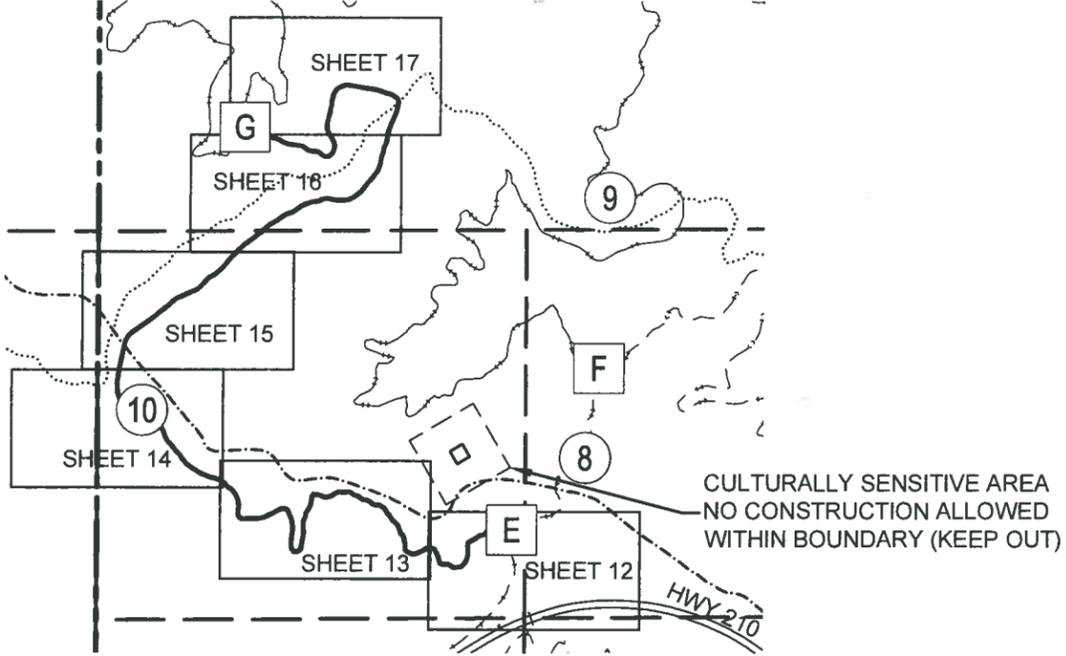
NOTE:
 SEE BID WORKSHEET B FOR AN ESTIMATED SUMMARY OF CONSTRUCTED FEATURE QUANTITIES.

POWER LINE TRAIL PROJECT #2:
 TRAIL SEGMENT 13 = GREEN TRADITIONAL (2 WAY)
 GROSS LENGTH SUMMARY: ±10,421 LF (±2.0 MILES)

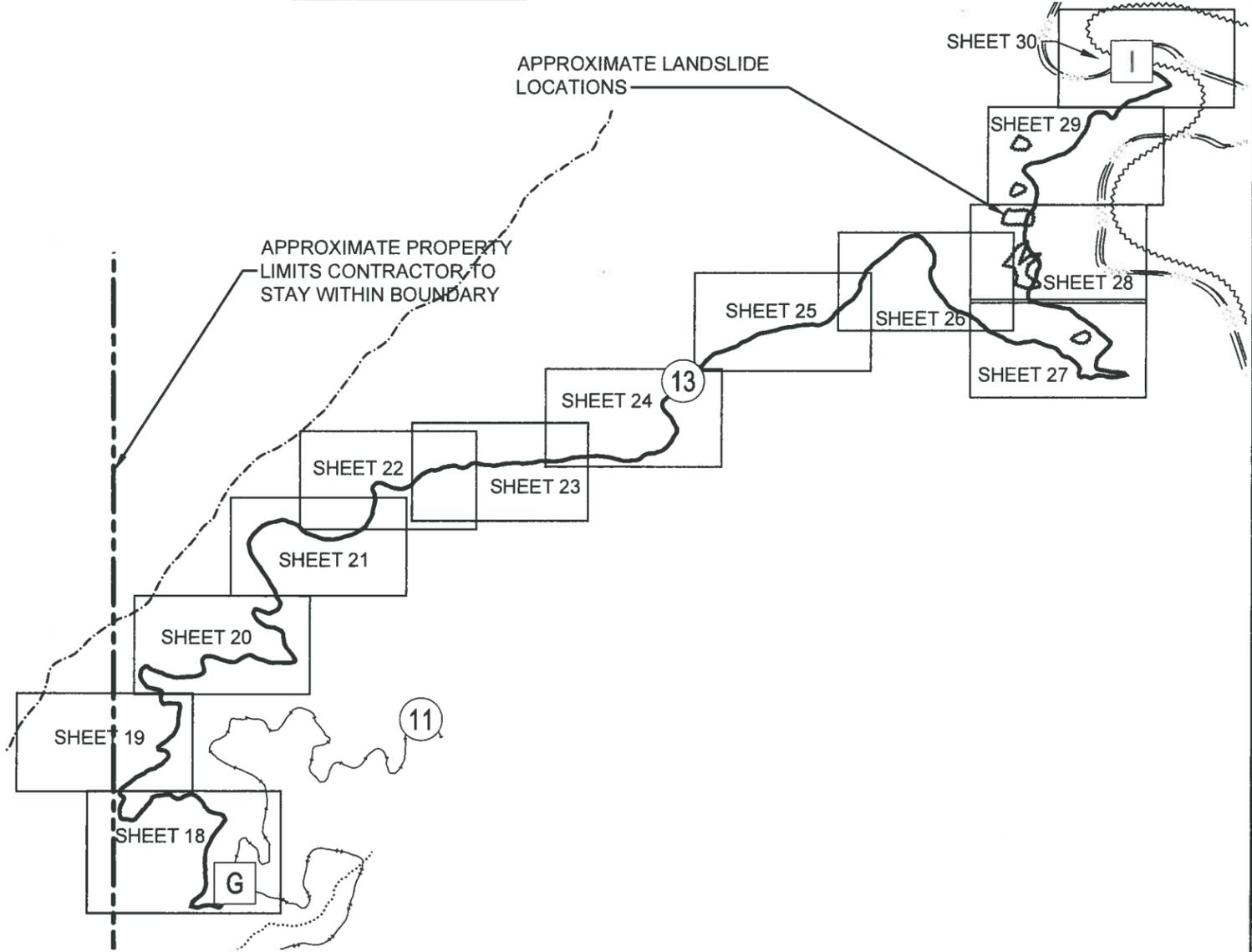
TRAIL SLOPE ANALYSIS - POWER LINE			
SLOPE RANGE	TYPE A 0-15%	TYPE B 16-60%	TYPE C 61+%
LENGTH	33 LF	10,388 LF	0 LF
PERCENT OF TRAIL	0.3%	99.7%	0.0%

NOTE:
 CONTRACTOR CANNOT INVOICE FOR BOTH TRAIL CONSTRUCTION, TYPES A, B & C, AND CONSTRUCTED FEATURES OF A GIVEN LINEAR FOOT OF TRAIL.

NOTE:
 SEE BID WORKSHEET B FOR AN ESTIMATED SUMMARY OF CONSTRUCTED FEATURE QUANTITIES.



LOCATOR MAP-GRAVE YARD TRAIL(SHEETS 12-17)
 NOT TO SCALE



LOCATOR MAP - POWER LINE TRAIL (SHEETS 18-30)
 NOT TO SCALE

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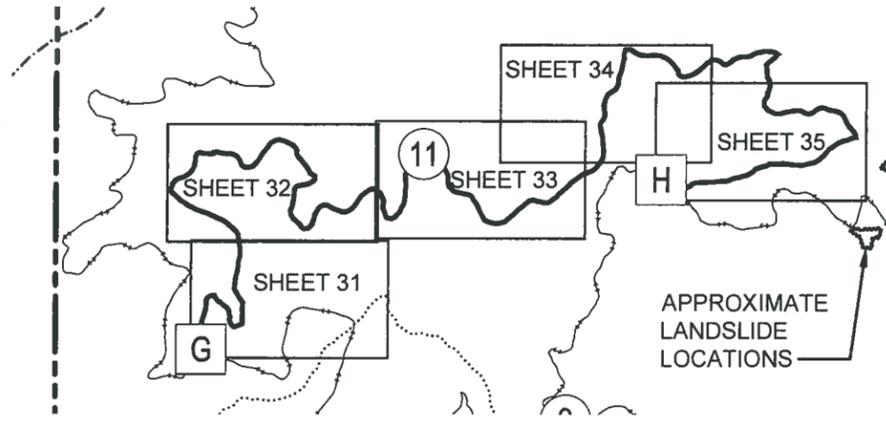
DULUTH TRAVERSE TRAIL MISSION CREEK PHASE II
 DULUTH, MINNESOTA

PROJECT NO: 12-039.1
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JAMES M. SPOBERG 45577
 LANDSCAPE ARCHITECT REG. 103

GRAVE YARD & POWER LINE TRAIL



LOCATOR MAP - BEAVER POND TRAIL (SHEETS 31-35)

NOT TO SCALE

BEAVER POND TRAIL PROJECT #3:
 TRAIL SEGMENT 11 = BLACK TRADITIONAL (1 WAY)
 GROSS LENGTH SUMMARY: ±5,749 LF (±1.1 MILES)

TRAIL SLOPE ANALYSIS - BEAVER POND				
SLOPE RANGE	TYPE A 0-15%	TYPE B 16-60%	TYPE C 61+%	
LENGTH	201 LF	5,548 LF	0 LF	
PERCENT OF TRAIL	3.5%	96.5%	0.0%	

NOTE:
 SEE BID WORKSHEET B FOR AN ESTIMATED SUMMARY OF CONSTRUCTED FEATURE QUANTITIES.

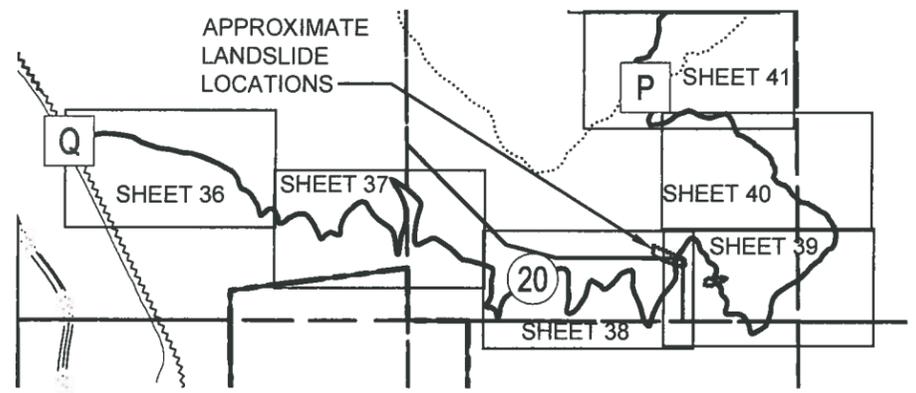
NOTE:
 CONTRACTOR CANNOT INVOICE FOR BOTH TRAIL CONSTRUCTION, TYPES A, B & C, AND CONSTRUCTED FEATURES OF A GIVEN LINEAR FOOT OF TRAIL.

131ST AVENUE TRAIL PROJECT #4:
 TRAIL SEGMENT 20 = BLUE TRADITIONAL (2 WAY)
 GROSS LENGTH SUMMARY: ±5,780 LF (±1.1 MILES)

TRAIL SLOPE ANALYSIS - 131ST AVENUE				
SLOPE RANGE	TYPE A 0-15%	TYPE B 16-60%	TYPE C 61+%	
LENGTH	233 LF	4,240 LF	1,307 LF	
PERCENT OF TRAIL	4.0%	73.4%	22.6%	

NOTE:
 CONTRACTOR CANNOT INVOICE FOR BOTH TRAIL CONSTRUCTION, TYPES A, B & C, AND CONSTRUCTED FEATURES OF A GIVEN LINEAR FOOT OF TRAIL.

NOTE:
 SEE BID WORKSHEET B FOR AN ESTIMATED SUMMARY OF CONSTRUCTED FEATURE QUANTITIES.



LOCATOR MAP - 131ST AVENUE TRAIL (SHEETS 36-41)

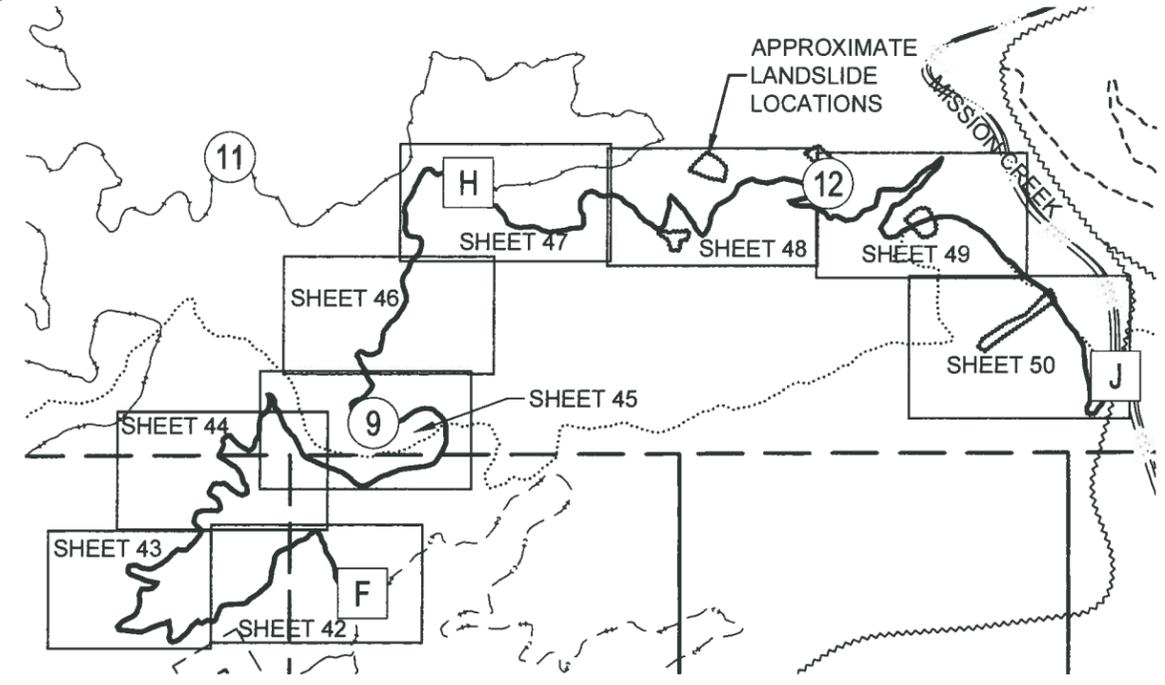
NOT TO SCALE

VALLEY WEST TRAIL ALTERNATE #1:
 TRAIL SEGMENT 9 & 12 = BLUE TRADITIONAL (2 WAY)
 GROSS LENGTH SUMMARY: ±9,561 LF (±1.8 MILES)

NOTE:
 CONTRACTOR CANNOT INVOICE FOR BOTH TRAIL CONSTRUCTION, TYPES A, B & C, AND CONSTRUCTED FEATURES OF A GIVEN LINEAR FOOT OF TRAIL.

NOTE:
 SEE BID WORKSHEET B FOR AN ESTIMATED SUMMARY OF CONSTRUCTED FEATURE QUANTITIES.

TRAIL SLOPE ANALYSIS - VALLEY WEST				
SLOPE RANGE	TYPE A 0-15%	TYPE B 16-60%	TYPE C 61+%	
LENGTH	1,422 LF	8,139 LF	0 LF	
PERCENT OF TRAIL	14.9%	85.1%	0.0%	



LOCATOR MAP - VALLEY WEST TRAIL (SHEETS 42-50)

NOT TO SCALE



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JAMES M. SROBERG 45577
 LANDSCAPE ARCHITECT (P.L.S. 1/3)

BEAVER POND, 131ST AVE. & VALLEY WEST TRAILS



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JAMES M. SROBERG 45577
LANDSCAPE ARCHITECT REG. 113

TRAIL DETAILS

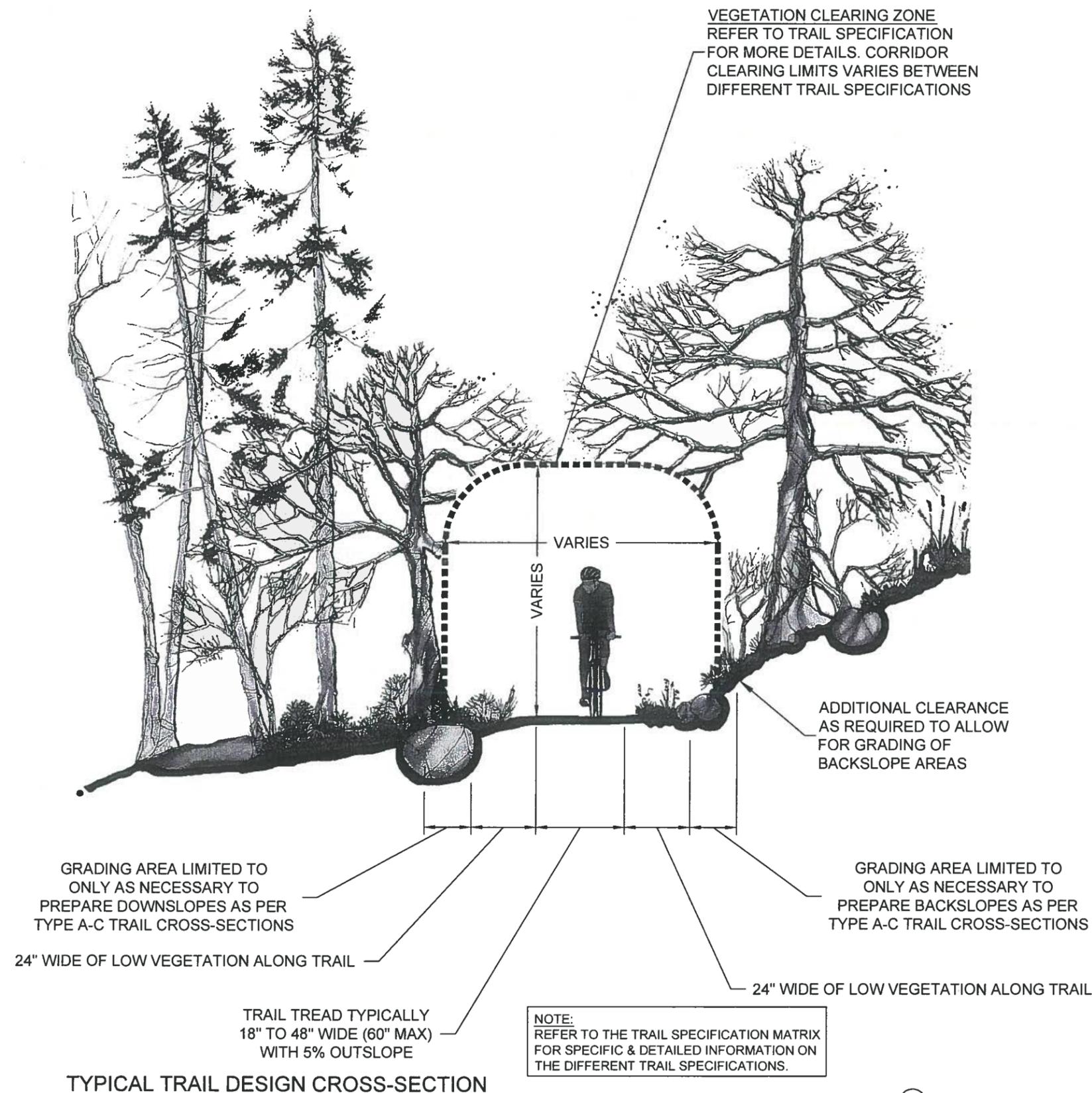
5

TYPICAL TRAIL DESIGN NOTES:

1. THE GRAPHIC ON THIS SHEET ILLUSTRATES A TYPICAL TRAIL CROSS-SECTION HIGHLIGHTING TREAD AND VEGETATION CLEARANCE ZONE WIDTHS.
2. IN SELECT SITUATION THE TRAIL WIDTH MAY BE MODIFIED IN RESPONSE TO THE TERRAIN OR TO CREATE A TRAIL FEATURE.
3. SEE SPECIFICATIONS FOR FURTHER DETAILS ON TREAD AND CORRIDOR CLEARING AND TYPICAL TRAIL DESIGN CROSS-SECTIONS
4. SEE SHEET 8 (SWPPP DETAILS), SWPPP & SPECIFICATIONS FOR RECOMMENDED BEST MANAGEMENT PRACTICES FOR EROSION CONTROL MEASURES.
5. AFTER COMPLETION OF ALL GRADING, THE TRAIL TREAD SHALL BE MECHANICALLY COMPACTED TO ITS SPECIFIED WIDTH USING A VIBRATORY PLATE, SHEEP'S FOOT, OR OTHER APPROVED EQUAL COMPACTOR.
6. CUT BRUSH AND SLASH MUST BE DISPOSED IN AN UPLAND LOCATION AND MUST BE KEPT OUT OF STREAMS, GULLIES, SWALES, WETLANDS, AND LOW AREAS. SEE SPECIFICATIONS FOR DETAILS.
7. NO EXCAVATION OR FILL PERMITTED IN WET & LOWLAND AREAS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONSULT WITH THE OWNER PRIOR TO DOING ANY WORK WITHIN SUSPECTED WET & LOWLAND AREAS.

TRAIL BIDDING NOTES:

1. TREE REMOVAL, STUMP REMOVAL, BRUSH REMOVAL, AND LIMB TRIMMING IS INCLUDED IN THE CONTRACTOR'S UNIT BID PRICE FOR TRAIL CONSTRUCTION TYPES "A, B & C". (SEE SPECIFICATION FOR FURTHER DETAILS)
2. TRAIL TREAD GRADING AND COMPACTING IS INCLUDED IN THE CONTRACTORS UNIT BID PRICE FOR TRAIL CONSTRUCTION TYPES "A, B & C". (SEE SPECIFICATION FOR FURTHER DETAILS)
3. PUSHING ASIDE ROCKS OR FRACTURED STONE ENCOUNTERED WHILE GRADING THE TRAIL IS INCLUDED IN THE CONTRACTOR'S UNIT BID PRICE FOR TRAIL CONSTRUCTION TYPES "A, B & C". (SEE SPECIFICATIONS FOR FURTHER DETAILS)
4. GRADING THROUGH LOW SPOTS, FLATTER AREAS, EARTHEN PILES, LANDSLIDES, MISCELLANEOUS DEBRIS, AND FALLEN WOODY MATERIALS IS INCLUDED IN THE CONTRACTOR'S UNIT BID PRICE FOR TRAIL CONSTRUCTION TYPES "A, B & C". (SEE SPECIFICATIONS FOR FURTHER DETAILS)
5. ALL TURNS NOT DEFINED AS A BERM OR SWITCHBERM ARE TO BE INSLOPED TURNS AS SPECIFIED. INSLOPED TURNS ARE INCLUDED IN THE CONTRACTOR'S UNIT BID PRICE FOR TRAIL CONSTRUCTION TYPES "A, B & C". (SEE SPECIFICATIONS FOR FURTHER DETAILS)
6. GRADE REVERSALS ARE REQUIRED AT A MINIMUM EVERY 100 LF. GRADE REVERSALS ARE INCLUDED IN THE CONTRACTOR'S UNIT BID PRICE FOR TRAIL CONSTRUCTION TYPES "A, B & C". (SEE SPECIFICATIONS FOR FURTHER DETAILS)



NOTE:
REFER TO THE TRAIL SPECIFICATION MATRIX FOR SPECIFIC & DETAILED INFORMATION ON THE DIFFERENT TRAIL SPECIFICATIONS.

1/5

TYPICAL TRAIL DESIGN CROSS-SECTION

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DULUTH TRAVERSE TRAIL MISSION CREEK PHASE II
DULUTH, MINNESOTA

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JAMES M. SROBERG 45577
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TRAIL DETAILS

6

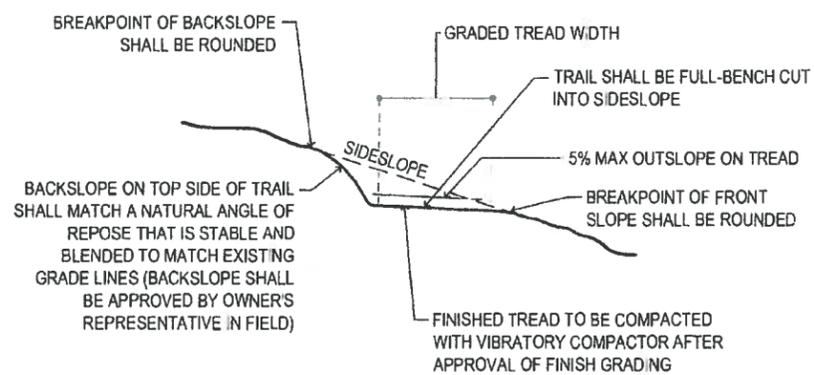
FIELD MEASUREMENT NOTES:

- MEASUREMENT AND PAYMENTS FOR TRAIL CONSTRUCTION TYPE IS BASED ON THE SLOPE AVERAGES AS DEPICTED IN THE TRAIL ALIGNMENT SECTION OF THIS PLAN SET AND IN THE TRAIL SLOPE ANALYSIS MAP (FOUND IN THE SPECS).
- TRAIL TYPES AND QUANTITIES ARE PROVIDED AS A CONVENIENCE TO THE CONTRACTOR. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY FIELD QUANTITIES AND NOTIFY THE OWNER OF ANY DISCREPANCIES PRIOR TO COMMENCING WORK.

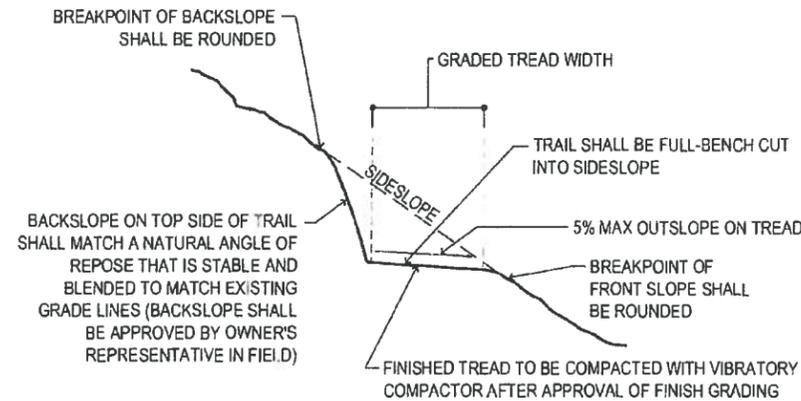
CONSTRUCTION NOTE:

- PARTIAL BENCH CUT IS ALLOWED WHEN DONE PROPERLY WITH A DOWNHILL RETAINING WALL AND COMPACTED BACKFILL. REFER TO PAGE 159 OF (TRAIL SOLUTIONS: IMBA'S GUIDE TO BUILDING BETTER SINGLETRACK).
- GRADING THROUGH LOW SPOTS, FLATTER AREAS, EARTHEN PILES, LANDSLIDES, MISCELLANEOUS DEBRIS, AND FALLEN WOODY MATERIALS IS INCLUDED IN THE CONTRACTOR'S UNIT BID PRICE FOR TRAIL CONSTRUCTION TYPES "A, B & C". (SEE SPECIFICATIONS FOR FURTHER DETAILS)
- CONTRACTOR IS EXPECTED TO CREATE FREQUENT GRADE REVERSALS REGARDLESS OF THE LOCAL LANDSCAPE. THIS MAY REQUIRE LOCALIZED TOPOGRAPHY MODIFICATIONS INCLUDING BUT NOT LIMITED TO RAISED TREAD, BORROW PITS AND SUMPS WHEN BUILDING THROUGH LANDSCAPES WITH LOW SLOPE ANGLES AND FLATTER AREAS SUCH AS TYPE "A" TRAIL.

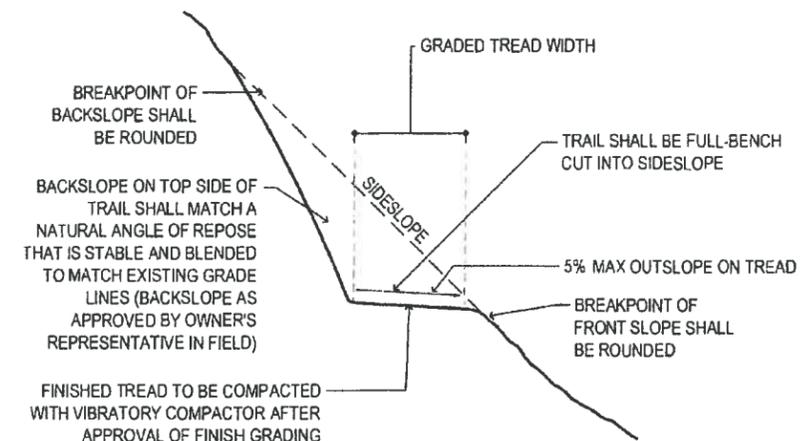
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TYPE "A" (LOW SIDESLOPE TRAIL) 3%-15% SIDESLOPE



TYPE "B" (MEDIUM SIDESLOPE TRAIL) 16%-60% SIDESLOPE



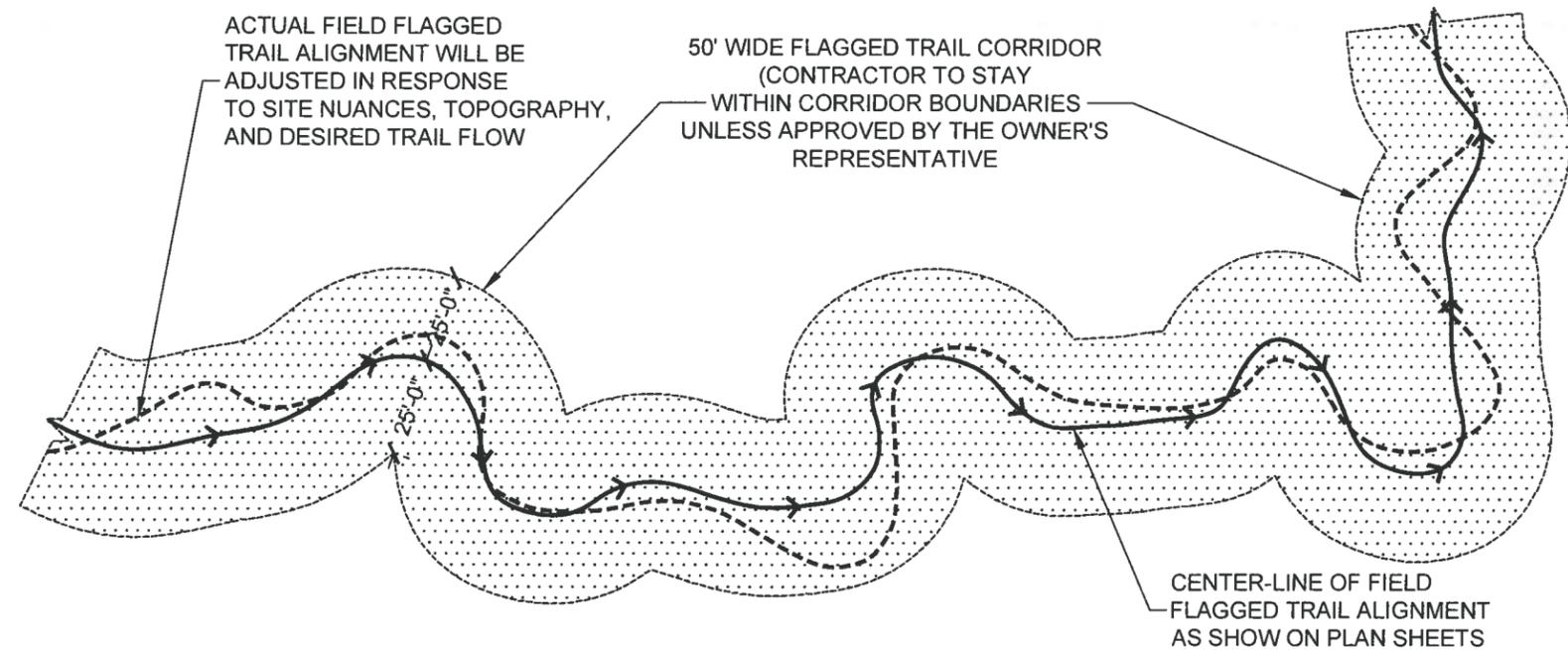
TYPE "C" (HIGH SIDESLOPE TRAIL) 61%+ SIDESLOPE

TYPICAL TRAIL CROSS-SECTIONS (A-C TRAIL TYPES)

NOT TO SCALE

1/8

NOTES:
 PLAN SHEETS 12-50 ILLUSTRATE THE CENTER OF A 50-FOOT WIDE CORRIDOR FOR TRAIL CONSTRUCTION, WHICH ARE PROVIDED TO ESTABLISH AN OVERALL TRAIL LAYOUT PLAN AND TO ESTIMATE OVERALL LINEAL FEET OF TRAIL.



TRAIL LAYOUT AND FIELD LAYOUT REQUIREMENTS
 NOT TO SCALE

Flagging:

In this project, the centerline of a 50' wide trail corridor has been flagged by IMBA for the Owner. The plans and specifications are based on this trail corridor. Final trail design is the responsibility of the Contractor within this corridor.

Final trail design consists of a one-time 300 LF pin flagged trail segment flagged by the Contractor prior to the start of construction for each trail specification type. This project has three trail specification types, Traditional Green Bike Optimized Singletrack, Traditional Blue Bike Optimized Singletrack and Traditional Black Bike Optimized Singletrack. Final design pin flagging must reside within the approved corridor. This is to communicate design intent to the Owner for each trail specification type that is identified in the plans. Upon approval of the pin flagged segment by the Owner and verification that it meets the specification requirements the Contractor can proceed with project construction within the 50' corridor following the requirements of the specifications.

Corridor is marked with pink and/or orange hanging flags. Archeologically sensitive areas have been identified in the plans and must be avoided by 100 LF in all directions. Final trail design should be at least fifty feet (50') from property boundaries unless otherwise authorized by the Owner or identified in the plans.

Contractor shall mark with flagging tape all trees over six inches (6") DBH that are to be removed. Final determination on removal lies with the Owner.

The trail should have a grade reversal a minimum of every one-hundred feet (100'). Trail should follow a rolling contour alignment and abide by the Half Rule. Grades must match the trail type defined by the "Trail Specification Matrix" for a specific segment.



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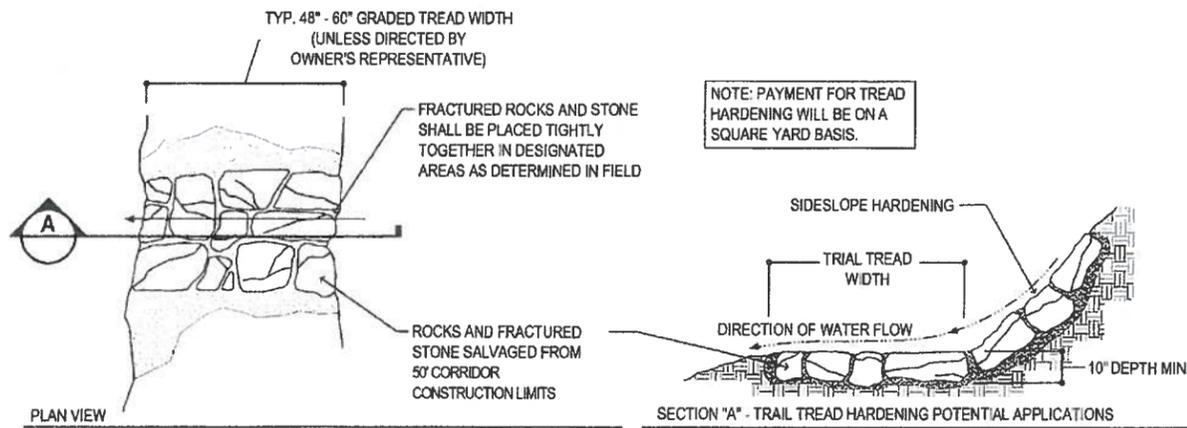
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JAMES M. SROBERG 45577
 LANDSCAPE ARCHITECT

TRAIL DETAILS

7



CONSTRUCTION NOTE:

BACKFILL BEDDING MATERIAL SHALL BE 3" - 6" OF 3/4" - CRUSHED ROCK. THE SAME CRUSHED ROCK CAN BE UTILIZED FOR FILL BETWEEN THE SET ROCK/STONE.

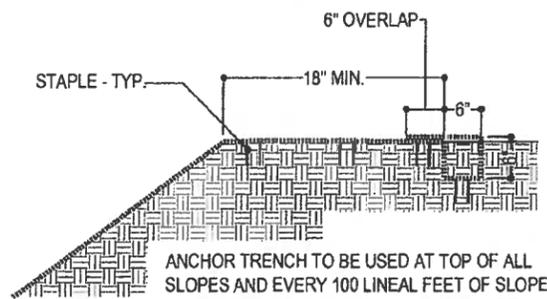
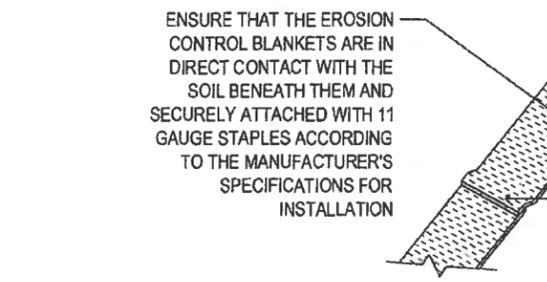
10" MINIMUM ROCK/STONE SET DEPTH.

SEAMS RUNNING IN THE DIRECTION OF TRAVEL SHALL BE MINIMIZED IN BOTH LENGTH AND WIDTH. SEAM WIDTH SHALL BE MINIMIZED AND SEAM STAGGERING SHALL BE USED WHERE POSSIBLE.

TRAIL TREAD ROCK ARMORING AND SIDESLOPE ARMORING DETAIL

NOT TO SCALE

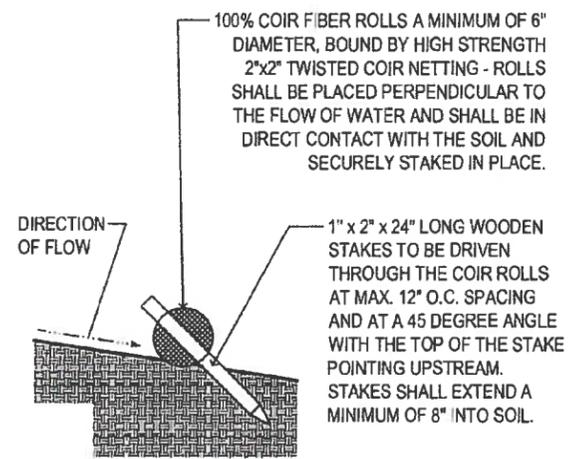
1/8



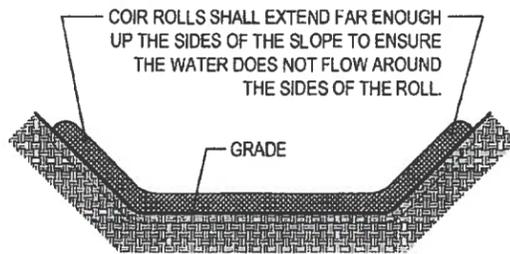
EROSION CONTROL BLANKET:

CATEGORY 3:
FOR DISTURBED AREAS WITH SLOPES BETWEEN 3:1 AND 2:1, COVER WITH CATEGORY 3 EROSION CONTROL BLANKET CONSISTING OF 100% STRAW MATRIX, SUCH AS WESTERN EXCELSIOR EXCEL SS-2 WITH ALL NATURAL NETTING (OR APPROVED EQUAL) MEETING THE MnDOT SPECIFICATION SECTION 3885 REQUIREMENTS.

CATEGORY 4:
FOR DISTURBED AREAS WITH 2:1 SLOPES OR OVER, COVER WITH CATEGORY 4 EROSION CONTROL BLANKET CONSISTING OF 30% COCONUT / 70% STRAW BLEND, SUCH AS WESTERN EXCELSIOR EXCEL CS-3 WITH ALL NATURAL NETTING (OR APPROVED EQUAL) MEETING THE MnDOT SPECIFICATION SECTION 3885 REQUIREMENTS.



CROSS-SECTION DETAIL

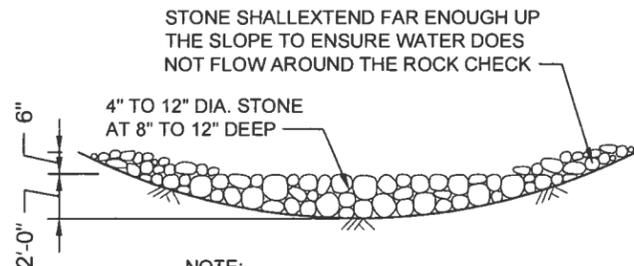


SECTION VIEW

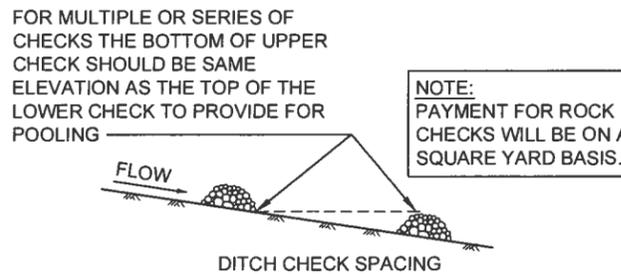
COIR ROLL DETAIL

NOT TO SCALE

3/8



NOTE: ROCK CHECKS TO BE USED IN AREAS OF CONCENTRATED FLOW



ROCK CHECK DETAIL

NOT TO SCALE

4/8

SWPPP NOTES:

- ALL DISTURBED AREAS NOT PART OF ACTIVE TREAD TO BE STABILIZED WITHIN 7 DAYS OF NOT BEING WORKED. SEE (SWPPP) STORM WATER POLLUTION PREVENTION PLAN FOR DETAILS.
- WHENEVER POSSIBLE USE NATIVE DUFF MATERIALS FOUND IN THE TRAIL CORRIDOR AS A MULCH FOR COVERING SOIL EXPOSED BY BACKSLOPE AND DOWNSLOPE CUTS. WOOD CHIPS MADE FROM WOODY MATERIAL CLEARED AS A RESULT OF THE CORRIDOR CLEARING ARE AN ACCEPTABLE ALTERNATIVE TO NATIVE DUFF MULCH.
- FOR SLOPE ANGLES UNDER 3:1 USE TEMPORARY EROSION CONTROL SEED MIX AND FOR DISTURBED AREAS THAT ARE LACKING ADEQUATE NATIVE DUFF MATERIAL.
- FOR SLOPE ANGLES 3:1 AND OVER USE PERMANENT EROSION CONTROL SEED MIX AND EROSION CONTROL BLANKET FOR LAND SLIDE AREAS AND AREAS OF HEAVY DISTURBANCE. THESE AREAS MUST BE APPROVED BY THE OWNER.
- SEE SWPPP FOR SEED MIX DETAILS.
- AFTER COMPLETION OF ALL GRADING, THE TRAIL TREAD SHALL BE MECHANICALLY COMPACTED TO ITS SPECIFIED WIDTH USING A VIBRATORY PLATE, SHEEP'S FOOT, OR OTHER APPROVED EQUAL COMPACTOR.
- CUT BRUSH AND SLASH MUST BE DISPOSED IN AN UPLAND LOCATION AND MUST BE KEPT OUT OF STREAMS, GULLIES, SWALES, WETLANDS, AND LOW AREAS. SEE SPECIFICATIONS FOR DETAILS.
- NO EXCAVATION OR FILL PERMITTED IN WET & LOWLAND AREAS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONSULT WITH THE OWNER PRIOR TO DOING ANY WORK WITHIN SUSPECTED WET & LOWLAND AREAS.



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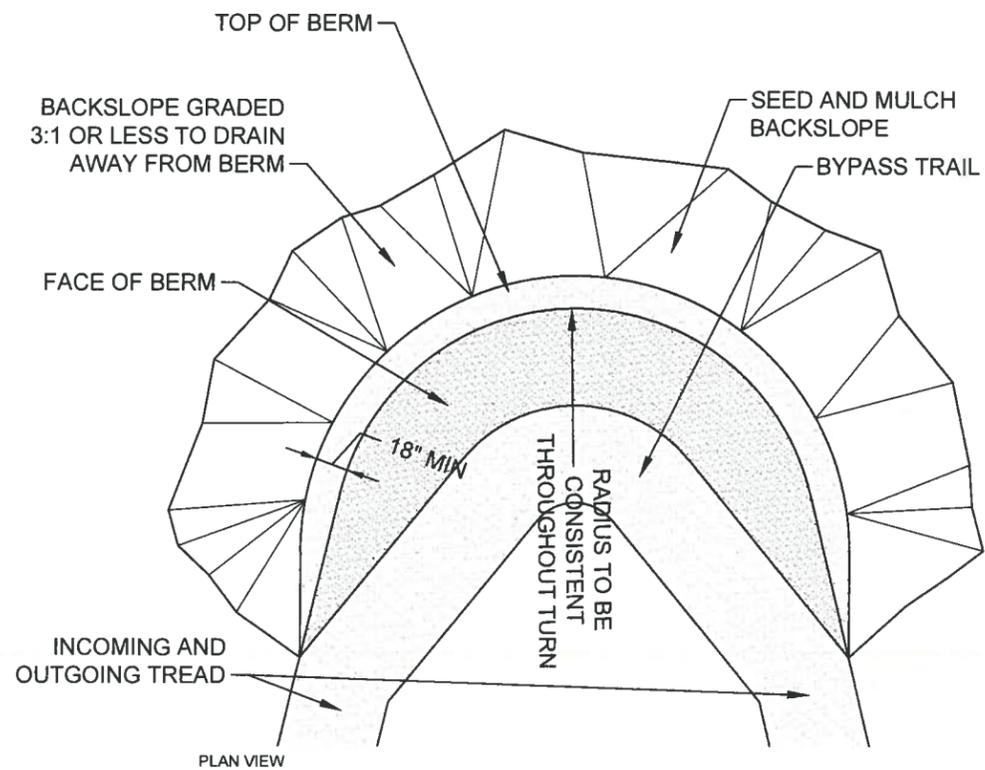
DULUTH TRAVERSE TRAIL MISSION CREEK PHASE II
DULUTH, MINNESOTA

PROJECT NO: 12-039.1
DATE: MAR-27-2014
DRAWN BY: TTP
REVISIONS:

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JAMES M. SPOBERG 45577
LANDSCAPE ARCHITECT REG. NO.

SWPPP DETAILS



PAYMENT NOTE:

PAYMENT FOR (BERMS) WILL BE ON A LINEAL FOOT BASIS. IN CASES WHERE TRAIL IS ROUTED WHERE AN EXISTING EMBANKMENT OR SIDE HILL IS USED FOR A BERM, NO EXTRA PAYMENT WILL BE PROVIDED.

BERM LENGTH IS MEASURED AT THE POINT ON EACH END OF THE TURN WHERE THE HEIGHT EXCEEDS 12" ABOVE THE BYPASS TRAIL GRADE.

SEED AND MULCH IF NECESSARY ARE INCLUDED IN THE UNIT BID PRICE FOR TURNS AND BERMS.

BERMED ROLLERS OR (BROLLERS) ARE DEFINED AS TILTED TREAD SURFACE THAT IS INLOPED IN EXCESS OF THE STANDARD TREAD CROSS SLOPE OF 5%. BROLLERS DO NOT RESULT IN A CHANGE OF TRAIL DIRECTION ACROSS THE LANDSCAPE AND DO NOT CROSS THE FALL LINE. BROLLERS ARE INCLUDED IN THE CONTRACTOR'S UNIT BID PRICE FOR TRAIL CONSTRUCTION TYPES "A, B & C" AND ARE NOT CONSIDERED BERMS OR TURNS.

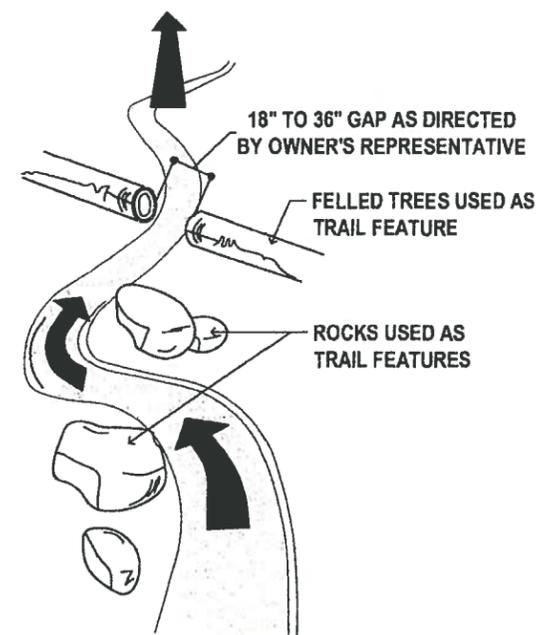
NOT ILLUSTRATED HERE ARE SWITCHBERMS. SWITCHBERMS ARE BILLED BY THE UNIT. THE UNIT STARTS AT THE INITIATION OF THE UPHILL AND COMPLETION OF THE DOWNHILL DRAINAGE STRUCTURE. FURTHER INFORMATION AND DETAIL ON SWITCHBERMS CAN BE FOUND IN THE SPECIFICATIONS.

NOTES:

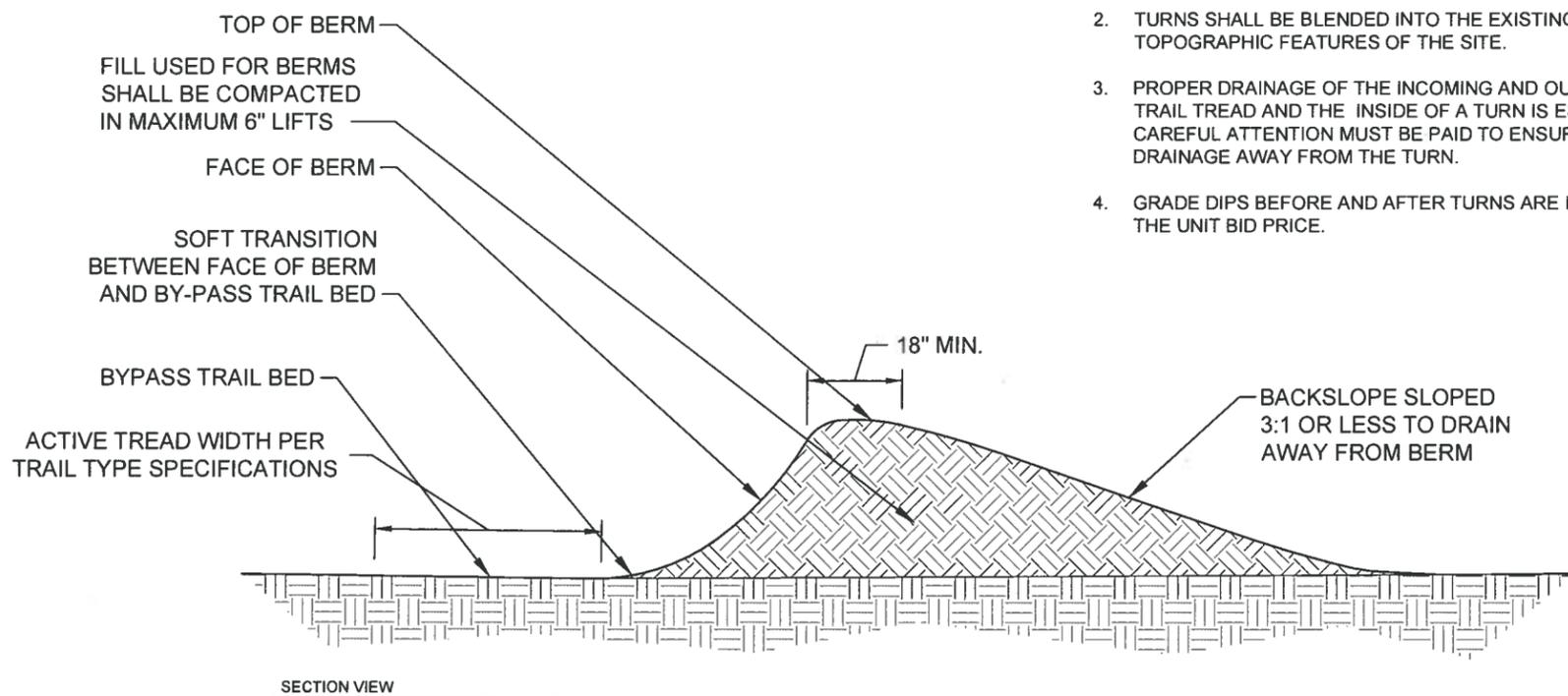
1. ACTUAL TURN SIZES, LENGTHS, AND RADII WILL BE BASED ON TRAIL TYPE SPECIFICATIONS FOUND IN THE TRAILS SPECIFICATION MATRIX AND SHALL BE FIELD FIT.
2. TURNS SHALL BE BLENDED INTO THE EXISTING TOPOGRAPHIC FEATURES OF THE SITE.
3. PROPER DRAINAGE OF THE INCOMING AND OUTGOING TRAIL TREAD AND THE INSIDE OF A TURN IS ESSENTIAL. CAREFUL ATTENTION MUST BE PAID TO ENSURE POSITIVE DRAINAGE AWAY FROM THE TURN.
4. GRADE DIPS BEFORE AND AFTER TURNS ARE INCLUDED IN THE UNIT BID PRICE.

TRAIL FEATURES PLACEMENT NOTE:

FELLED TREES AND ROCKS ENCOUNTERED ALONG THE TRAIL CAN BE USED AS A TRAIL FEATURE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PLACEMENT OF FELLED TREES AND MOVEABLE ROCKS ON THE EDGE OF THE TRAIL. MOVEMENT OF ROCKS WILL BE LIMITED TO WITHIN 5 FEET OF ORIGINAL LOCATION. THIS WORK SHALL BE INCLUDED IN THE CONTRACTOR'S UNIT BID PRICE FOR TRAIL CONSTRUCTION TYPES A, B & C.



ROCKS AND FELLED TREES DETAIL
NOT TO SCALE



TYPICAL TURN & BERM DETAIL
NOT TO SCALE



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DULUTH TRAVERSE TRAIL
MISSION CREEK
PHASE II

DULUTH, MINNESOTA

PROJECT NO. 12-039.1

DATE: MAR-27-2014

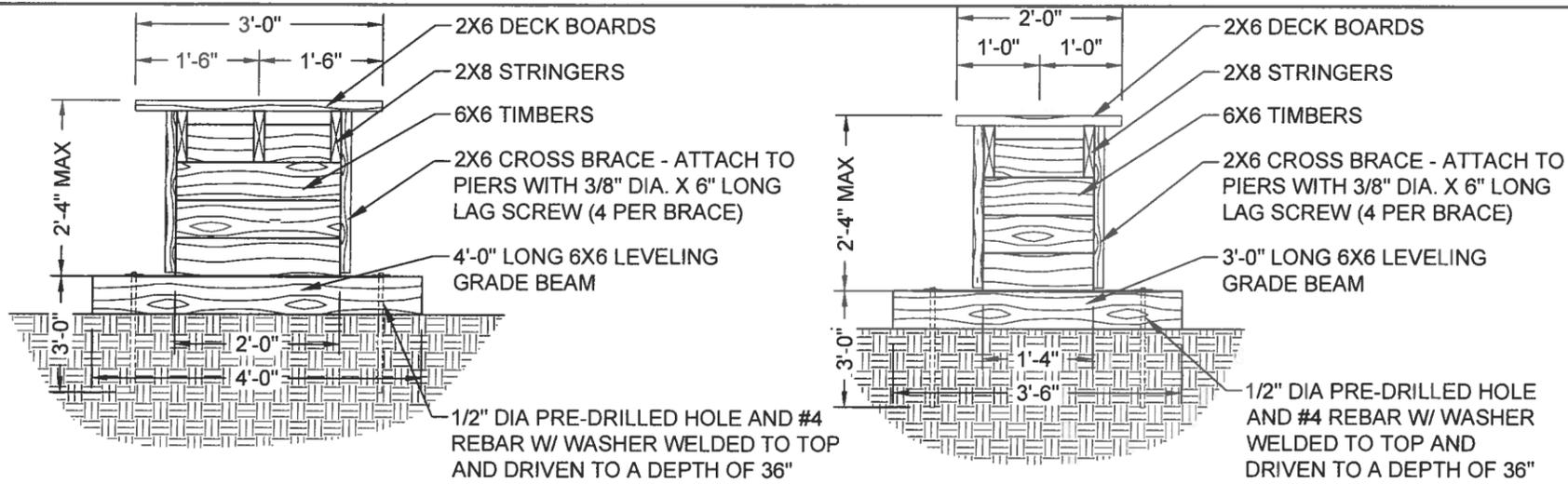
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JAMES M. SPOBERG 45577
LANDSCAPE ARCHITECT REG. 110

TRAIL
DETAILS



DETAIL NOTES:

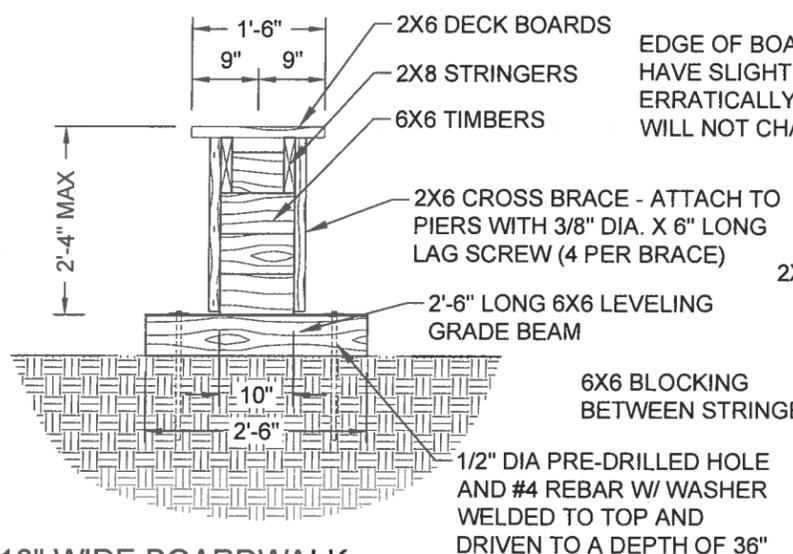
1. FINAL BOARDWALK FIELD DESIGN IS THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE BASE ON THE ENGINEERED CONSTRUCTION DOCUMENTS HEREIN AND IN THE SPECIFICATIONS.
2. CONTRACTOR IS TO PROVIDE A TYPICAL BOARDWALK AND BRIDGE SHOP DRAWING THAT IS PLANNED TO BE CONSTRUCTED IN THE FIELD FOR APPROVAL BY THE LANDSCAPE ARCHITECT.
3. LUMBER SHALL BE SIZED TO THE FULL DIMENSIONS SHOWN ON THE PLANS UNLESS NOTED OTHERWISE. ALL LUMBER SHALL BE A ROT-RESISTANT SPECIES OR TREATED ACCORDING TO THE OPTIONS INDICATED IN THE SPECIFICATIONS.
4. ACCEPTABLE MATERIALS FOR THE DECK RIDING SURFACE MUST BE ROUGH CUT LUMBER AND INCLUDES: CEDAR, TAMARACK AND TREATED PINE. ALL OTHER LUMBER USED IN THE CONSTRUCTION CAN BE EITHER ROUGH CUT OR DIMENSIONAL TREATED PINE LUMBER.
5. ROT-RESISTANT TREATMENTS OTHER THAN THOSE LISTED MUST BE APPROVED BY THE LANDSCAPE ARCHITECT PRIOR TO BIDDING.
6. LEVELING GRADE BEAMS SHALL BE SHIMMED AS NECESSARY TO MEET DESIRED PITCH OF STRUCTURE
7. SELECT FASTENERS AND HARDWARE IN ACCORDANCE WITH THE SPECIFICATIONS
8. SIZES, LENGTHS AND EXTENT OF ALL BOARDWALKS, ROCK HARDENED TREAD, BRIDGES AND BERMS TO BE FIELD FIT AT TIME OF CONSTRUCTION.
9. BOARDWALK & BRIDGE CONSTRUCTION LOCATIONS WILL BE DETERMINED IN THE FIELD BY THE CONTRACTOR AND SUBMITTED TO THE OWNER FOR APPROVAL.
10. CUT BRUSH AND SLASH MUST BE DISPOSED IN AN UPLAND LOCATION AND MUST BE KEPT OUT OF STREAMS, GULLIES, SWALES, WET AREAS, AND LOW AREAS. SEE SPECIFICATIONS FOR DETAILS.
10. NO EXCAVATION OR FILL PERMITTED IN WET AREAS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONSULT WITH THE OWNER PRIOR TO DOING ANY WORK WITHIN SUSPECTED WET AREAS.
11. WOOD RAMPS OR STONE PITCHING MAY BE REQUIRED BEFORE AND AFTER BRIDGES AND BOARDWALKS. APPLICATION WILL BE DETERMINED IN THE FIELD, BY THE CONTRACTOR AND MUST BE APPROVED BY THE OWNER PRIOR TO CONSTRUCTION. PAYMENT FOR RAMPS WILL BE ADDED TO THE TOTAL LENGTH OF THE BOARDWALK AND PAYMENT FOR STONE PITCHING WILL BE PER THE UNIT BID PRICE OF ROCK ARMORING.

36" WIDE BOARDWALK

NOT TO SCALE

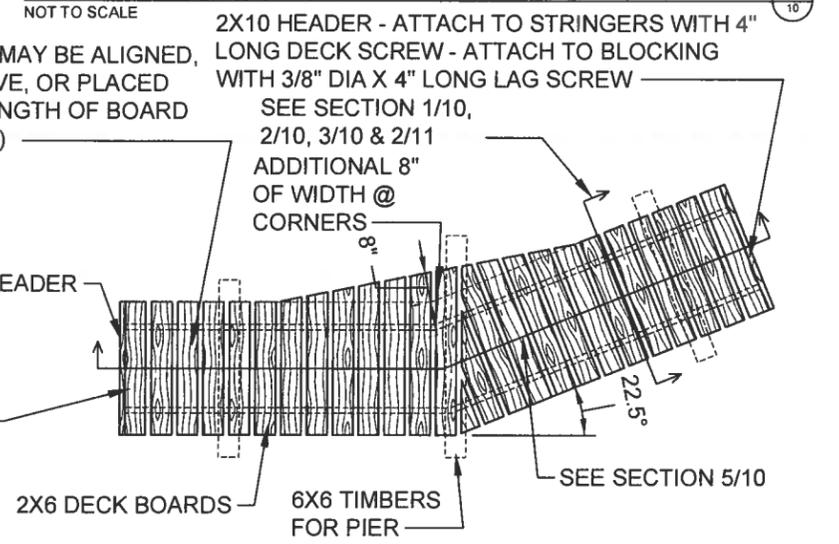
24" WIDE BOARDWALK

NOT TO SCALE



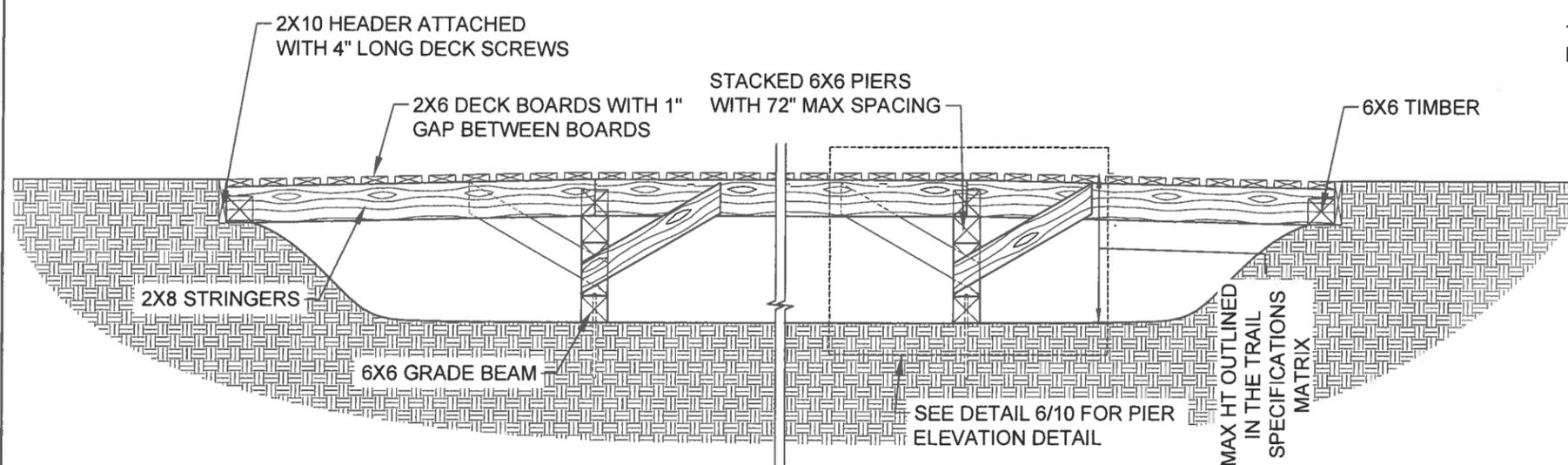
18" WIDE BOARDWALK

NOT TO SCALE



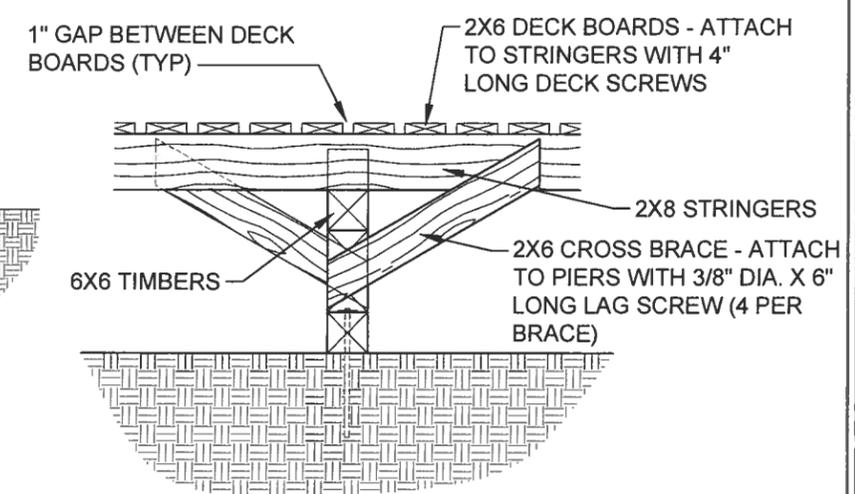
TYPICAL PLAN DETAIL OF BRIDGE (36" WIDE SHOWN)

NOT TO SCALE



TYPICAL ELEVATION DETAIL FOR BOARDWALK (WET AREA CROSSINGS)

NOT TO SCALE



TYPICAL ELEVATION @ PIER LOCATION

NOT TO SCALE



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DULUTH TRAVERSE TRAIL MISSION CREEK PHASE II
DULUTH, MINNESOTA

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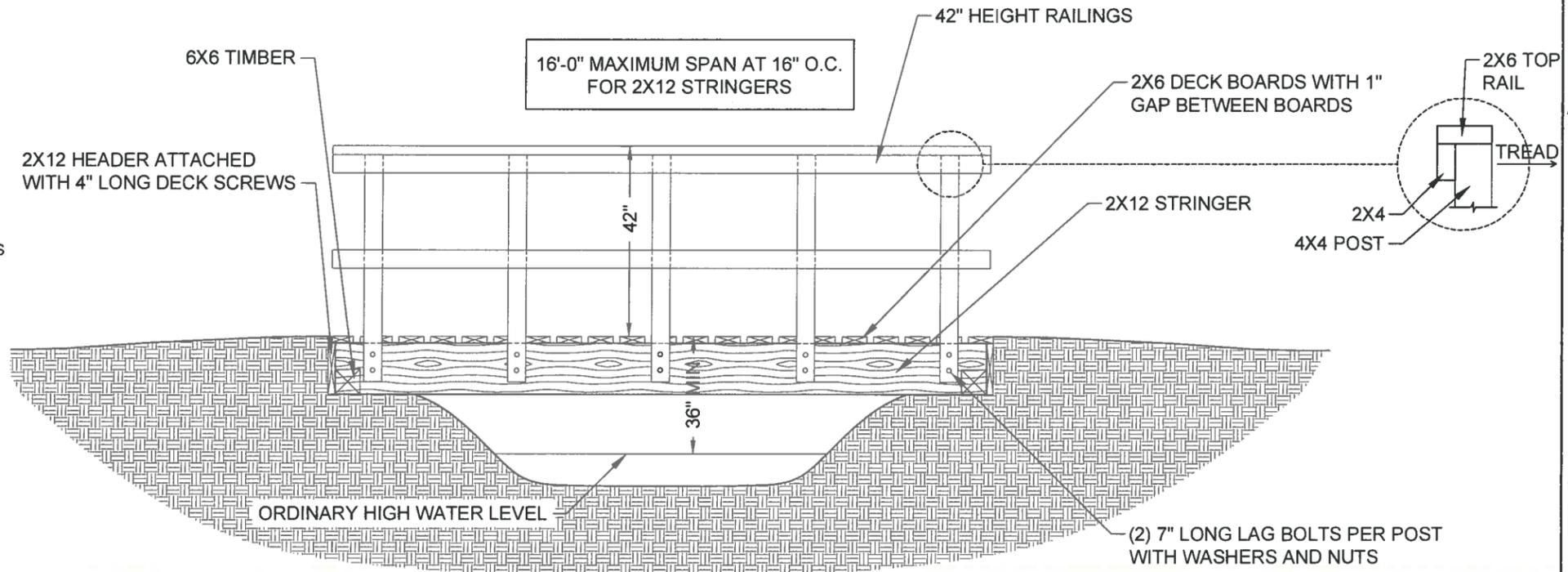
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JAMES M. SPOBERG 45577
LANDSCAPE ARCHITECT REG. 113

WOOD - TRAIL FEATURE DETAILS (Alternate #2)

DETAIL NOTES:

1. FINAL BOARDWALK FIELD DESIGN IS THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE BASE ON THE ENGINEERED CONSTRUCTION DOCUMENTS HEREIN AND IN THE SPECIFICATIONS.
2. CONTRACTOR IS TO PROVIDE A TYPICAL BOARDWALK AND BRIDGE SHOP DRAWING THAT IS PLANNED TO BE CONSTRUCTED IN THE FIELD FOR APPROVAL BY THE LANDSCAPE ARCHITECT.
3. LUMBER SHALL BE SIZED TO THE FULL DIMENSIONS SHOWN ON THE PLANS UNLESS NOTED OTHERWISE. ALL LUMBER SHALL BE A ROT-RESISTANT SPECIES OR TREATED ACCORDING TO THE OPTIONS INDICATED IN THE SPECIFICATIONS.
4. ACCEPTABLE MATERIALS FOR THE DECK RIDING SURFACE MUST BE ROUGH CUT LUMBER AND INCLUDES: CEDAR, TAMARACK AND TREATED PINE. ALL OTHER LUMBER USED IN THE CONSTRUCTION CAN BE EITHER ROUGH CUT OR DIMENSIONAL TREATED PINE LUMBER.
5. ROT-RESISTANT TREATMENTS OTHER THAN THOSE LISTED MUST BE APPROVED BY THE LANDSCAPE ARCHITECT PRIOR TO BIDDING.
6. LEVELING GRADE BEAMS SHALL BE SHIMMED AS NECESSARY TO MEET DESIRED PITCH OF STRUCTURE
7. SELECT FASTENERS AND HARDWARE IN ACCORDANCE WITH THE SPECIFICATIONS
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TYPICAL ELEVATION DETAIL FOR BRIDGE (CREEK CROSSINGS)

NOT TO SCALE

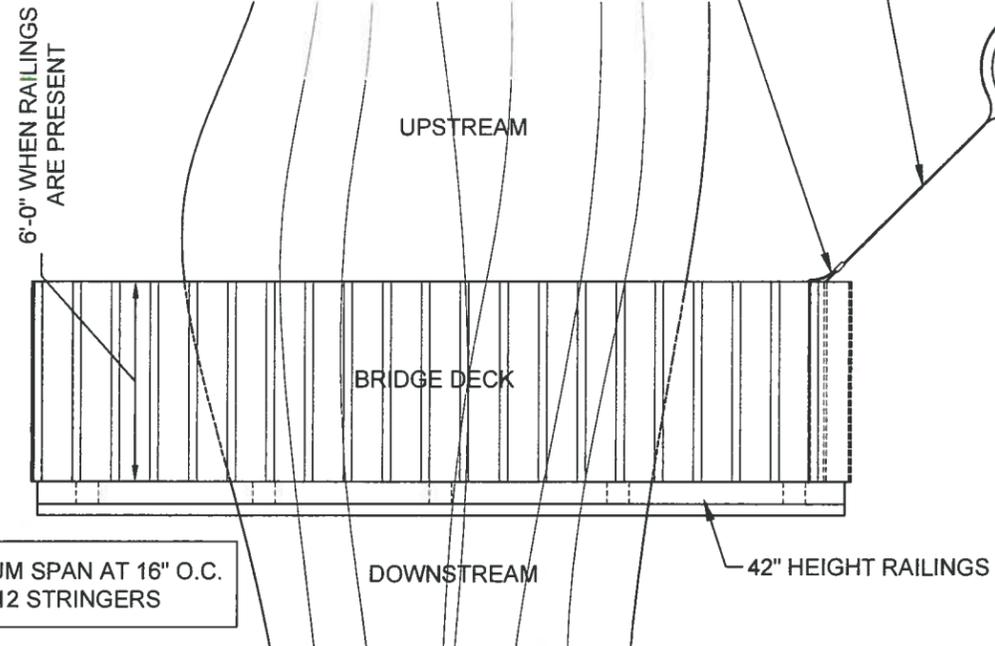
1/11

BRIDGES WITH RAILINGS SHALL BE 6'-0" IN WIDTH. LOCATIONS ARE IDENTIFIED IN THE PLANS

LOOP 1/4" STAINLESS STEEL CABLE AROUND 2X12 STRINGER ON UP STREAM SIDE OF BRIDGE AND TETHERING TO TREE

DO NOT PUT TENSION IN CABLE, LAY LOOSELY ON GROUND AND LOOSELY WRAP AROUND BASE OF TREE AT GROUND LEVEL TO PREVENT GIRTLING

LOOP (1) 1/4" STAINLESS STEEL CABLE AROUND TREE UPSTREAM OF BRIDGE. SELECT ONLY TREES THAT ARE HEALTHY & FREE OF DEFECTS OR DYING BRANCHES.

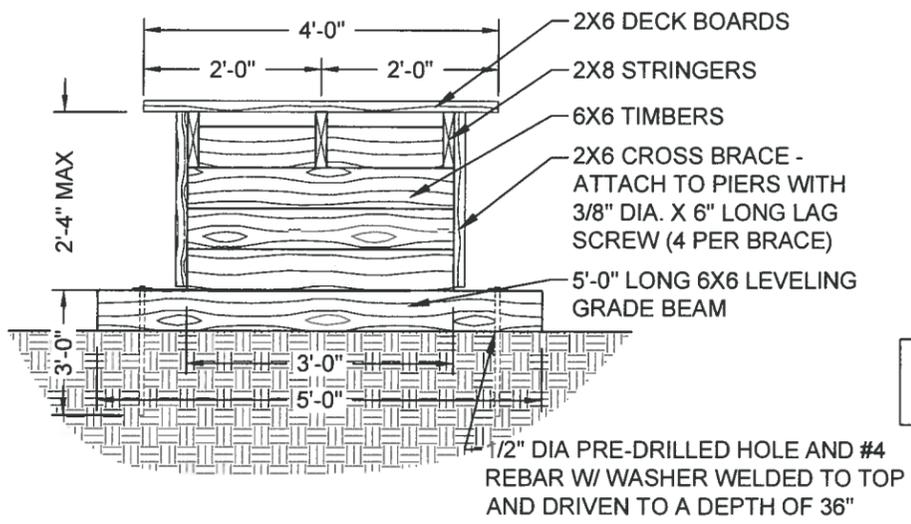


16'-0" MAXIMUM SPAN AT 16" O.C. FOR 2X12 STRINGERS

TYPICAL PLAN DETAIL FOR BRIDGE (CREEK CROSSINGS)

NOT TO SCALE

3/11



48" WIDE BOARDWALK

NOT TO SCALE

2/11



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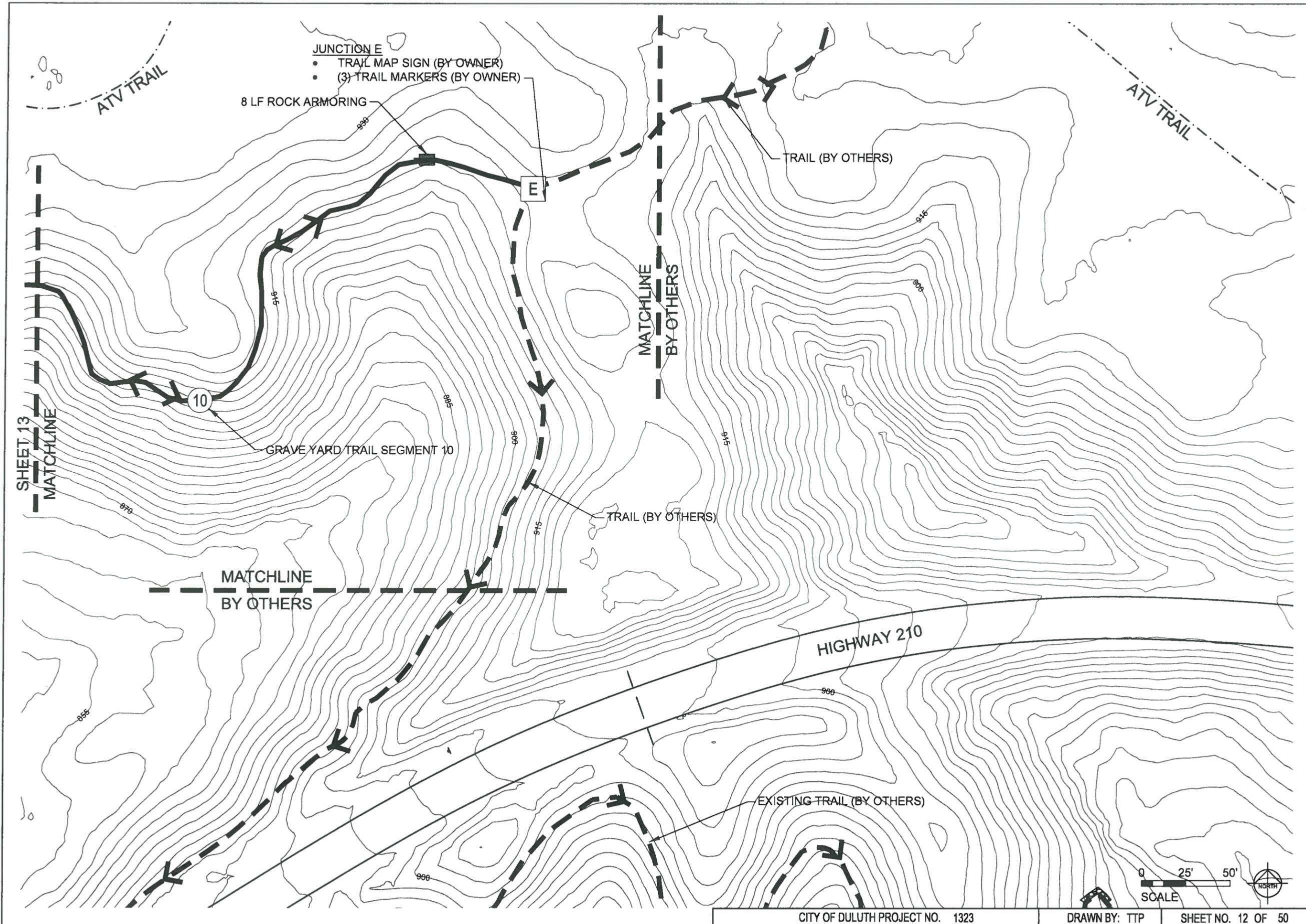
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JAMES M. SROBERG 45577
 LANDSCAPE ARCHITECT REG. ID.

WOOD - TRAIL FEATURE DETAILS (Alternate #2)

11



- JUNCTION E**
- TRAIL MAP SIGN (BY OWNER)
 - (3) TRAIL MARKERS (BY OWNER)

8 LF ROCK ARMORING

E

10

GRAVE YARD TRAIL SEGMENT 10

MATCHLINE
BY OTHERS

MATCHLINE
BY OTHERS

HIGHWAY 210

EXISTING TRAIL (BY OTHERS)



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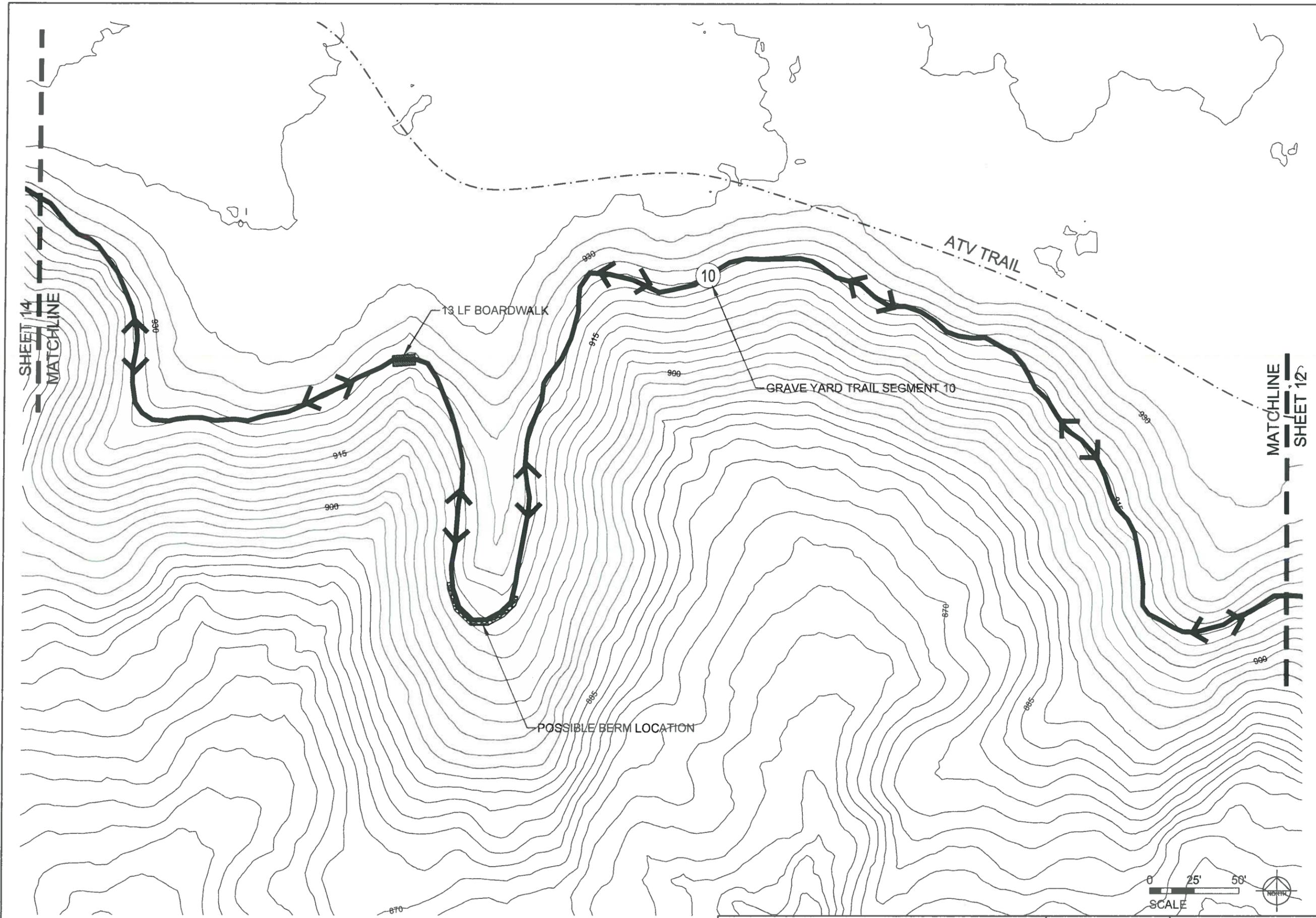
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LANDSCAPE ARCHITECT (REG. NO.)

**GRAVE
YARD TRAIL**

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TRAIL
MISSION CREEK
PHASE II**

DULUTH, MINNESOTA

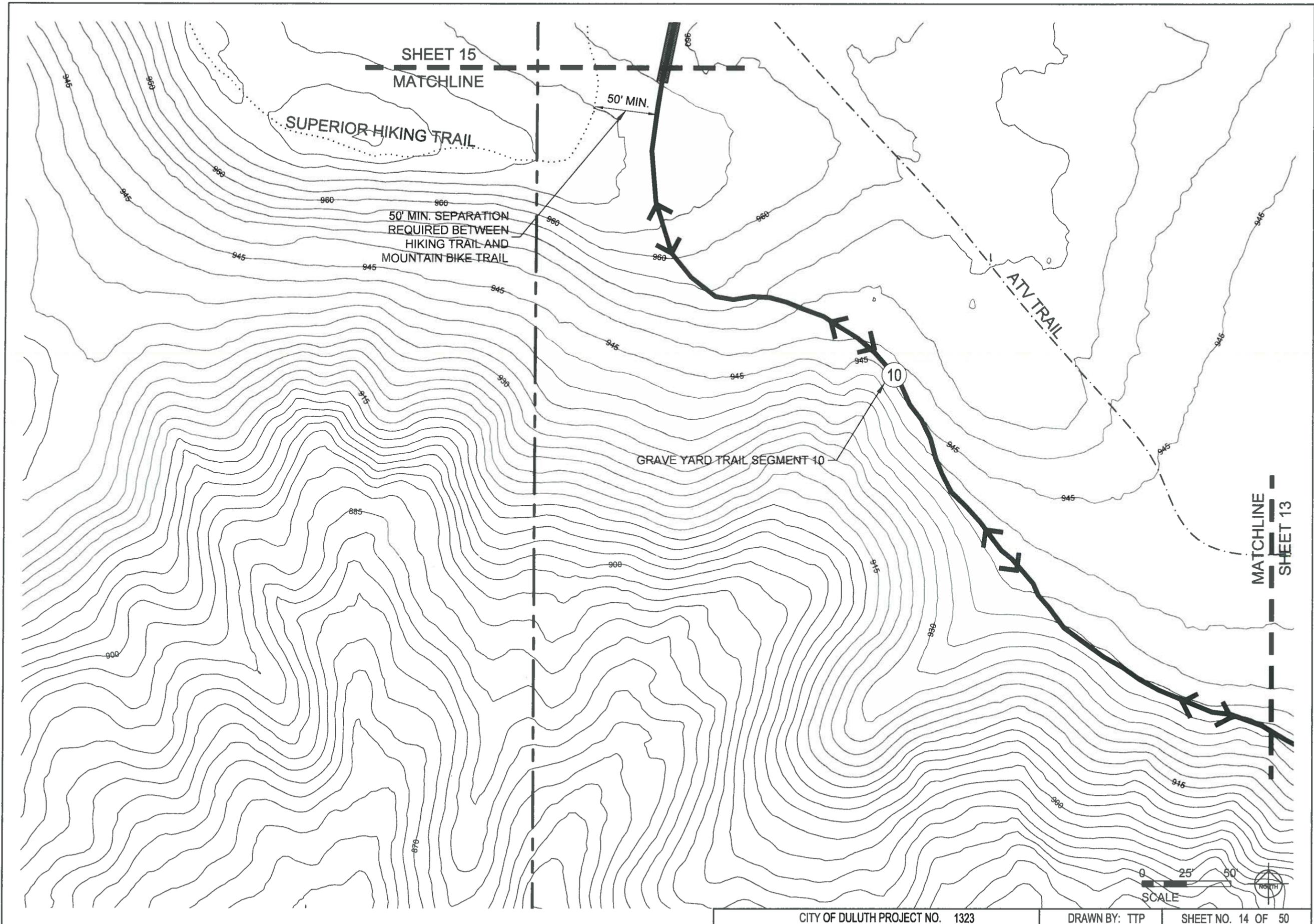
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LANDSCAPE ARCHITECT REG. 143

**GRAVE
YARD TRAIL**

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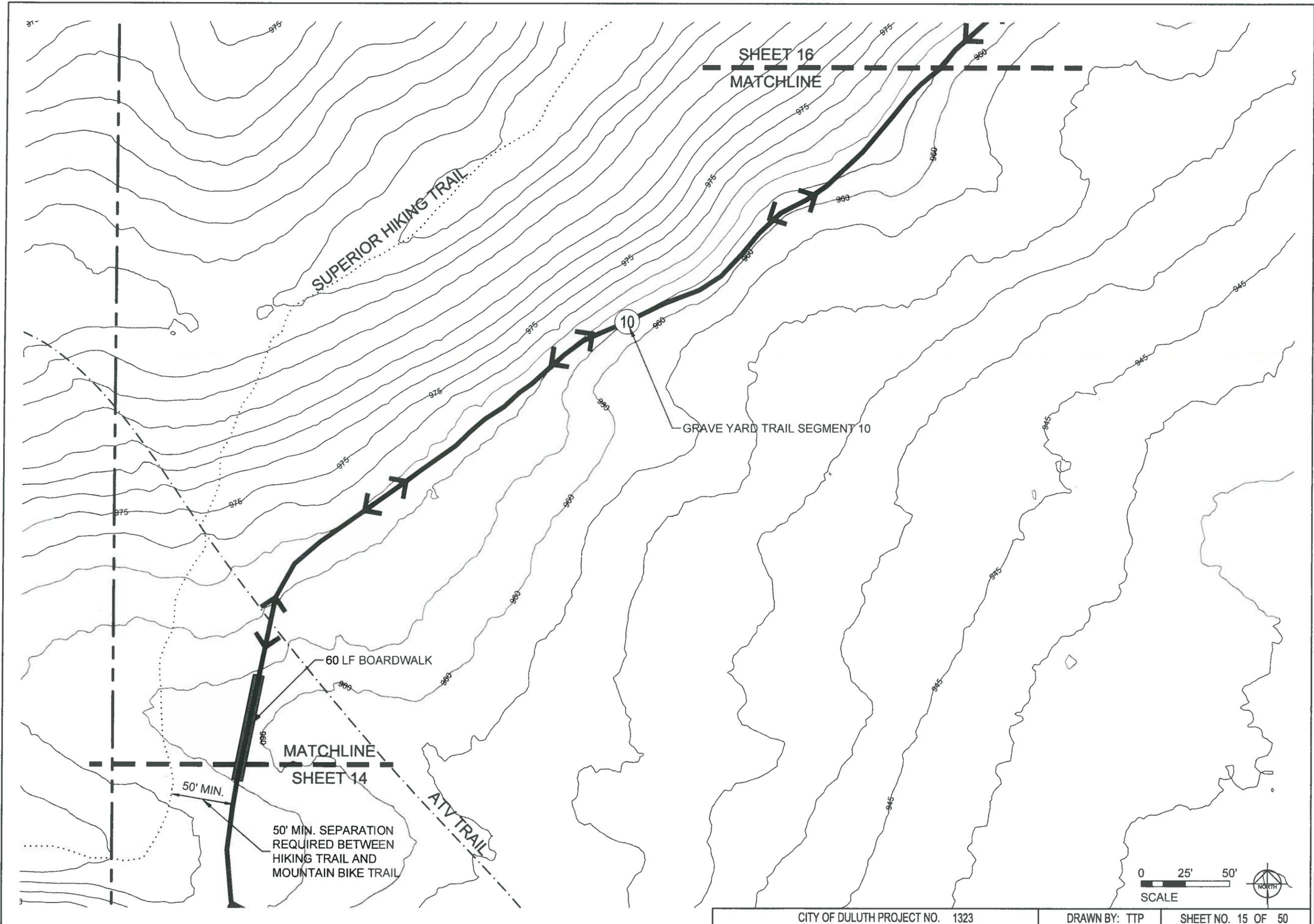
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GRAVE
YARD TRAIL

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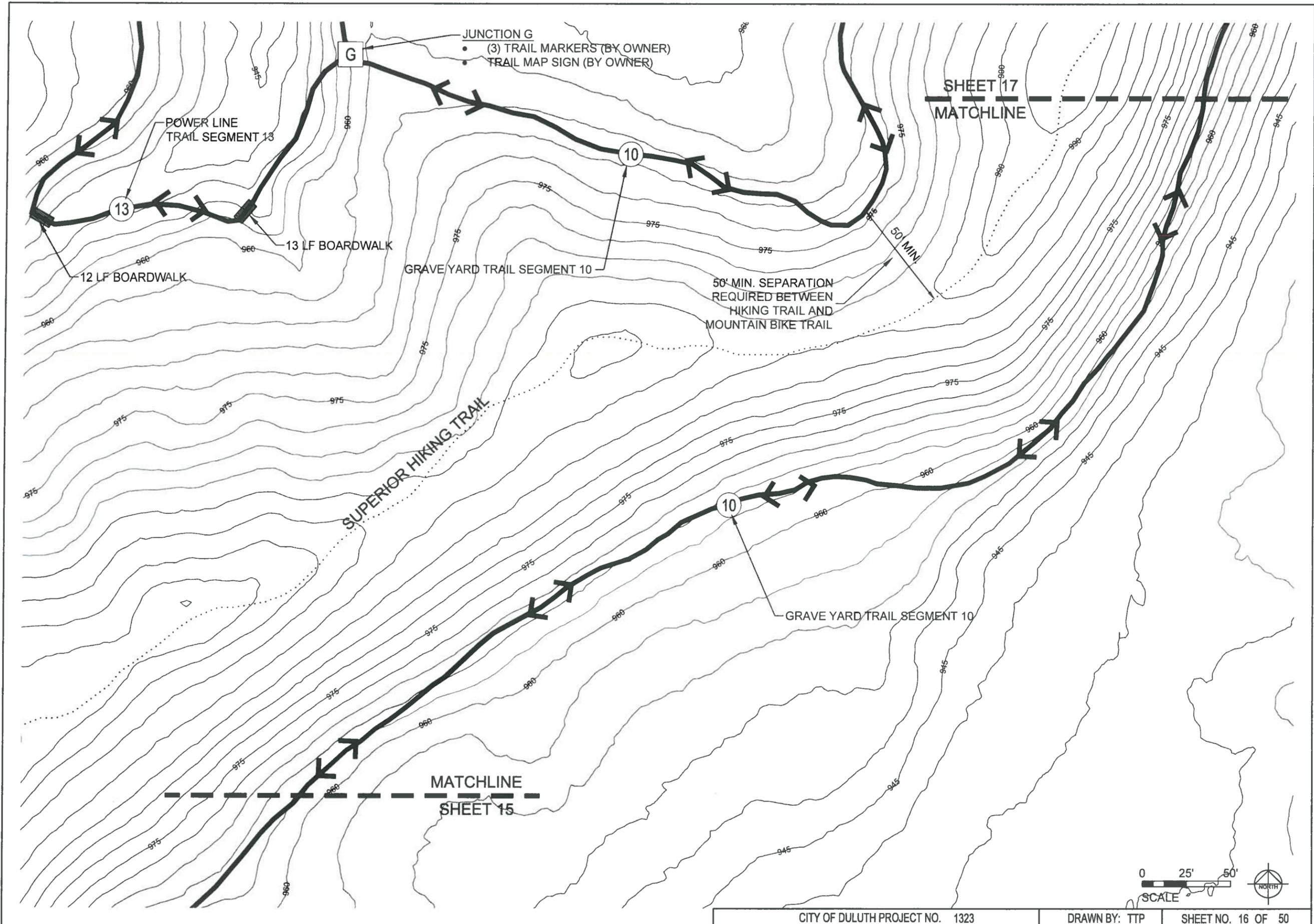
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**GRAVE
YARD TRAIL**

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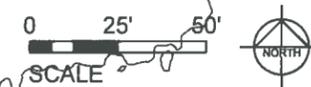
DULUTH TRAVERSE TRAIL MISSION CREEK PHASE II
 DULUTH, MINNESOTA

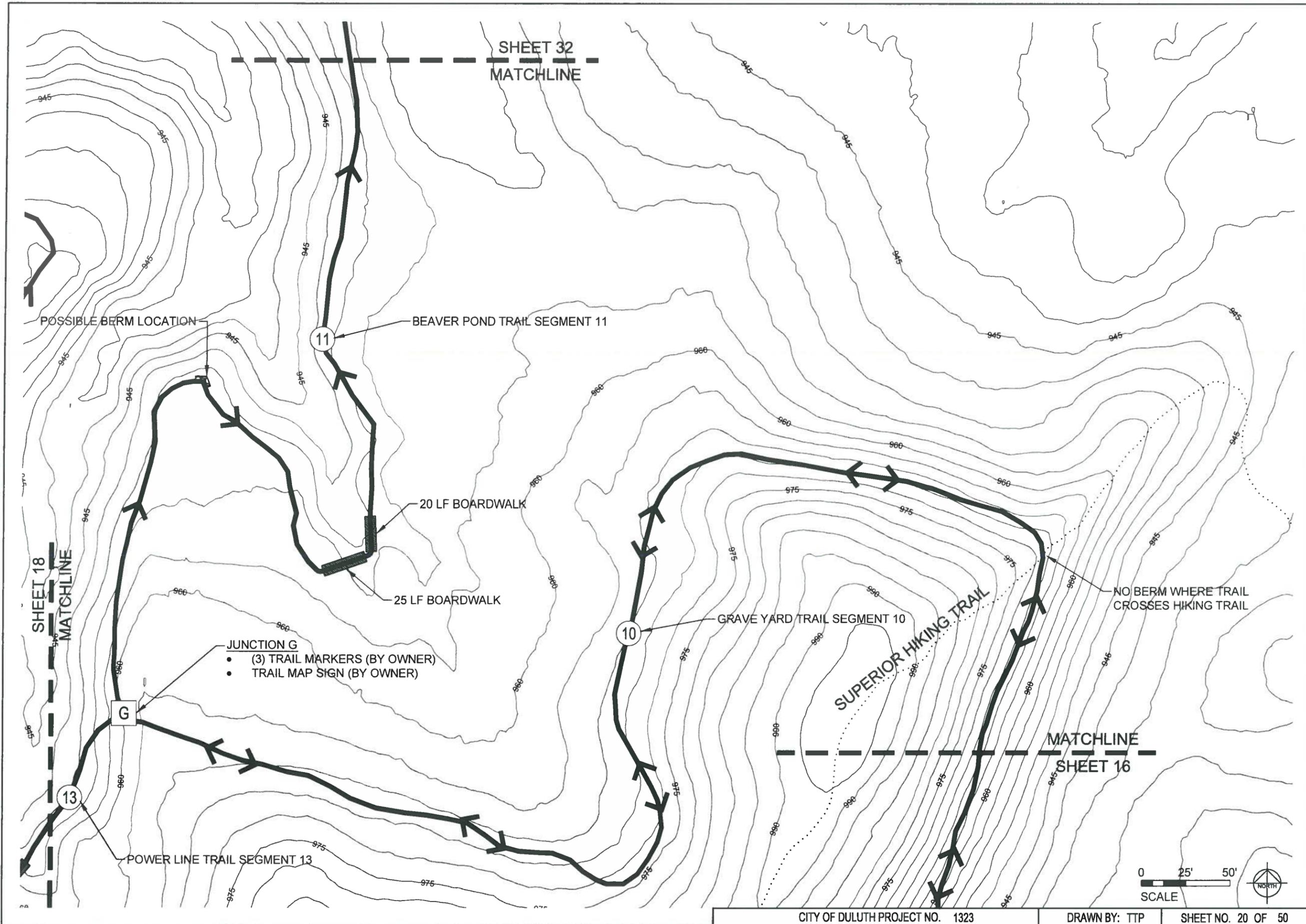
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JAMES M. SROBERG 45577
 LANDSCAPE ARCHITECT REG. MINN.

GRAVE YARD TRAIL





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- INTERIOR DESIGN

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FAX 218-727-8483
EMAIL: arches@cpinternet.com



**DULUTH
TRAVERSE
TRAIL
MISSION CREEK
PHASE II**
DULUTH, MINNESOTA

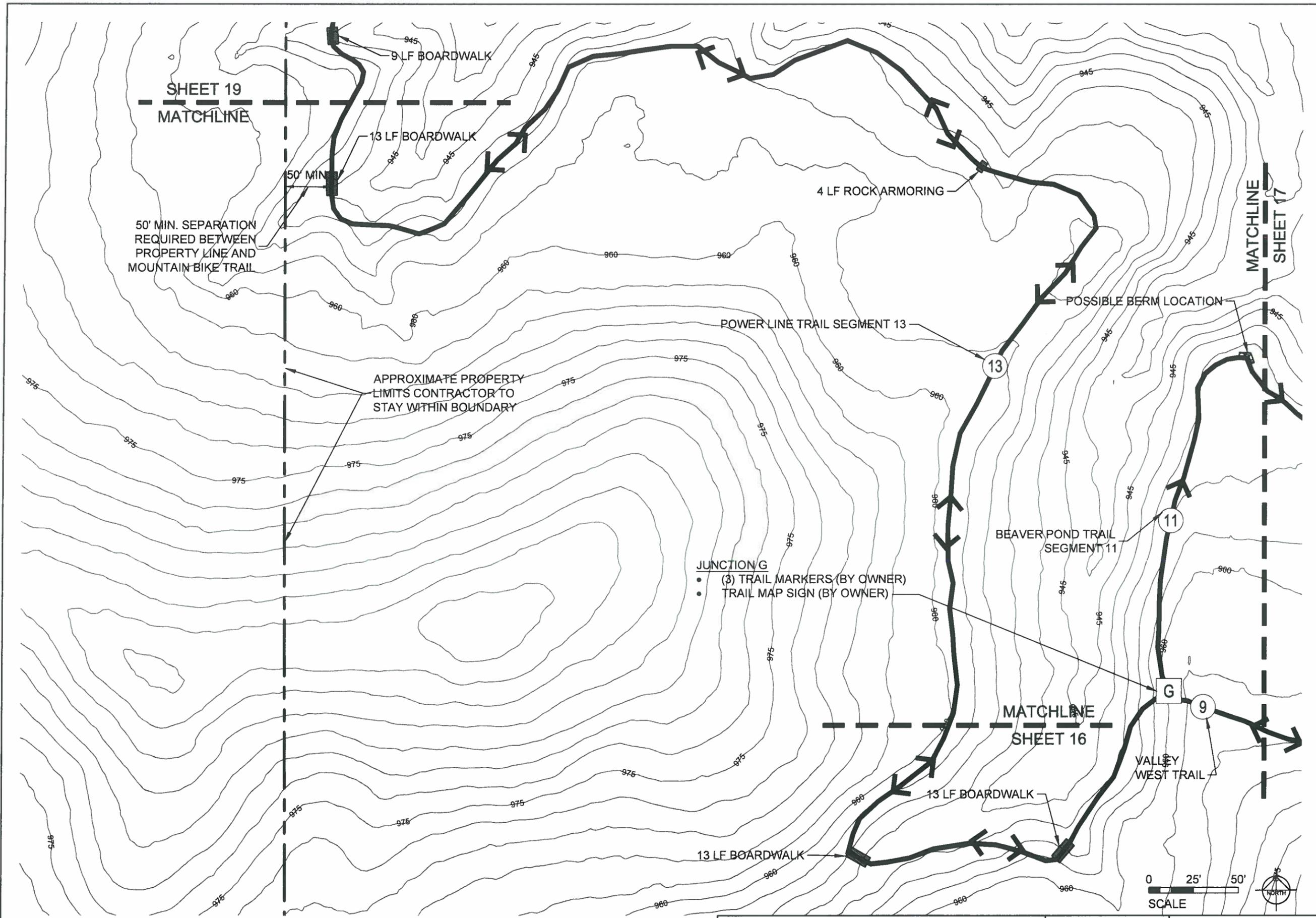
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JAMES M. SNOBERG 45577
LANDSCAPE ARCHITECT (REG. #13)

**GRAVE
YARD TRAIL
& BEAVER
POND TRAIL**

17



SHEET 19
MATCHLINE

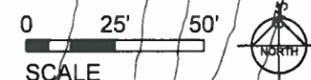
MATCHLINE
SHEET 17

50' MIN. SEPARATION
REQUIRED BETWEEN
PROPERTY LINE AND
MOUNTAIN BIKE TRAIL

APPROXIMATE PROPERTY
LIMITS CONTRACTOR TO
STAY WITHIN BOUNDARY

- JUNCTION G
- (3) TRAIL MARKERS (BY OWNER)
 - TRAIL MAP SIGN (BY OWNER)

MATCHLINE
SHEET 16



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a chapter of
IMBA
INTERNATIONAL MOUNTAIN BICYCLING ASSOCIATION

**DULUTH
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TRAIL
MISSION CREEK
PHASE II**
DULUTH, MINNESOTA

PROJECT NO.: 12-039.1

DATE: MAR-27-2014

DRAWN BY: TTP

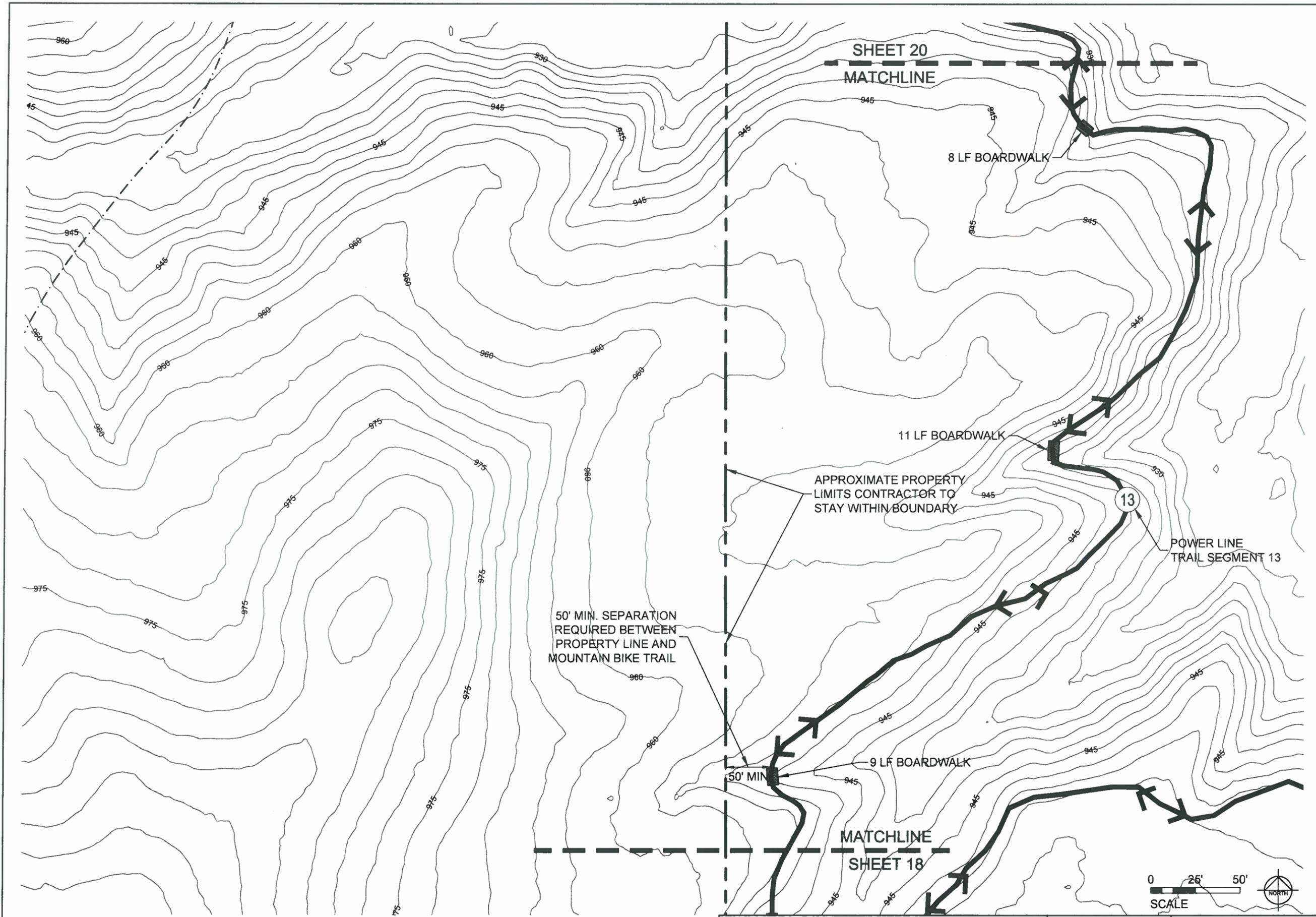
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JAMES M. SPOBERG 45577
LANDSCAPE ARCHITECT REG. 113

**POWER LINE
TRAIL**

18



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TRAIL
MISSION CREEK
PHASE II**
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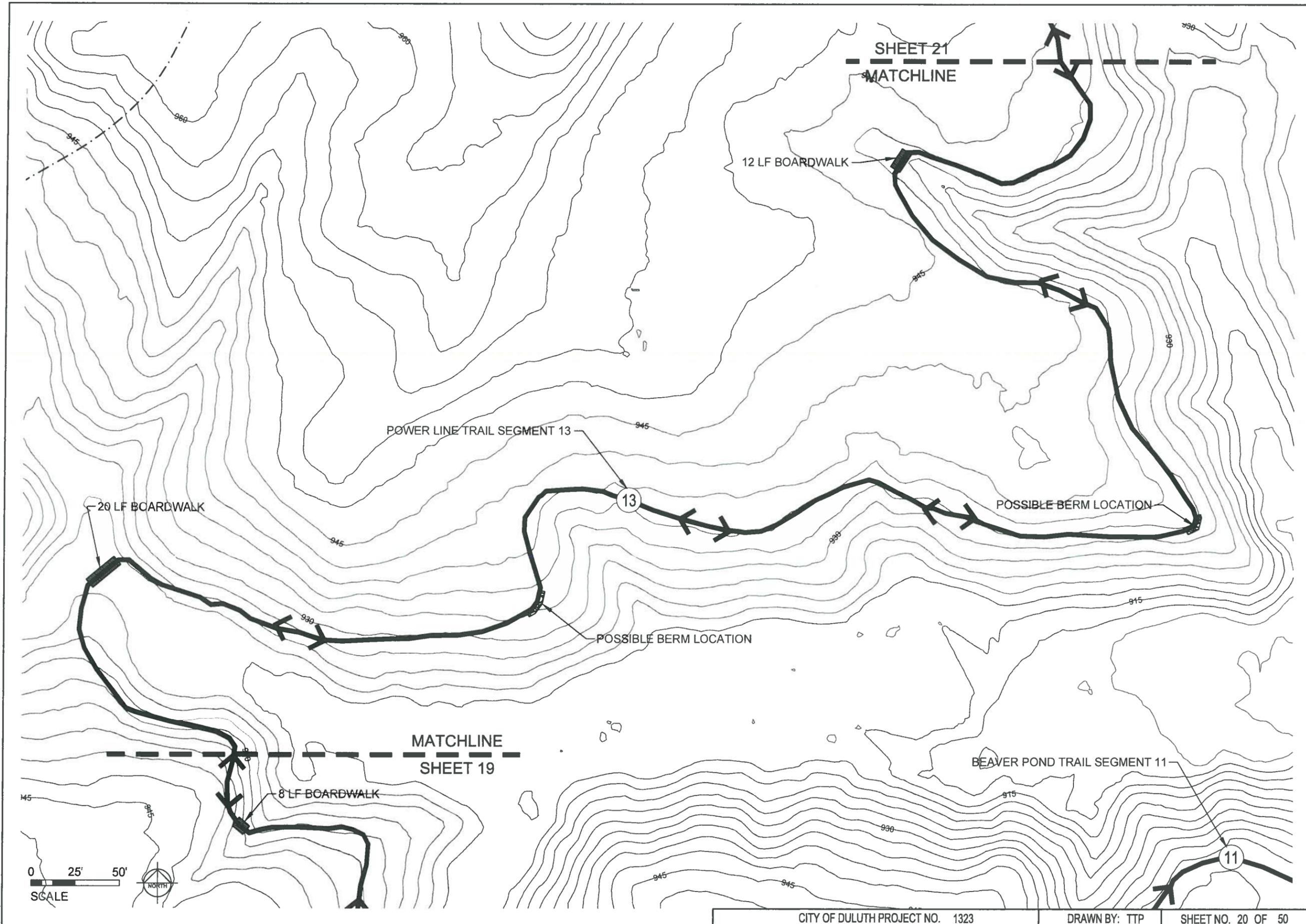
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JAMES M. SROBERG 45577
LANDSCAPE ARCHITECT

**POWER LINE
TRAIL**

19



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**DULUTH
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PHASE II**
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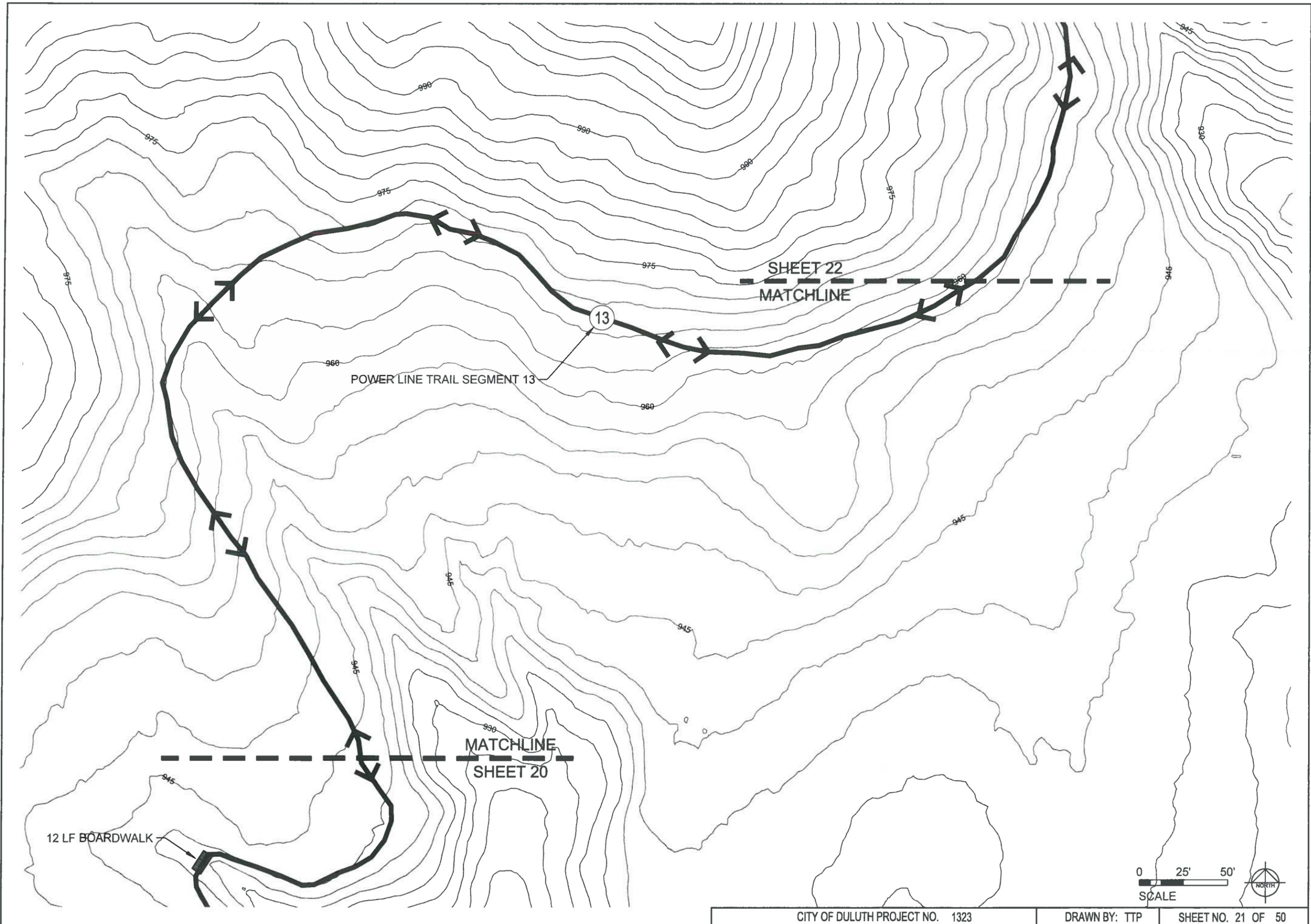
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JAMES M. SNOBERG 45577
LANDSCAPE ARCHITECT REG. NO.

**POWER LINE
TRAIL**

20



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TRAIL
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PHASE II**
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PROJECT NO.: 12-039.1

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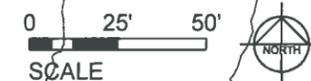
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JAMES M. SROBERG 45577
LANDSCAPE ARCHITECT REG. MINN.

**POWER LINE
TRAIL**

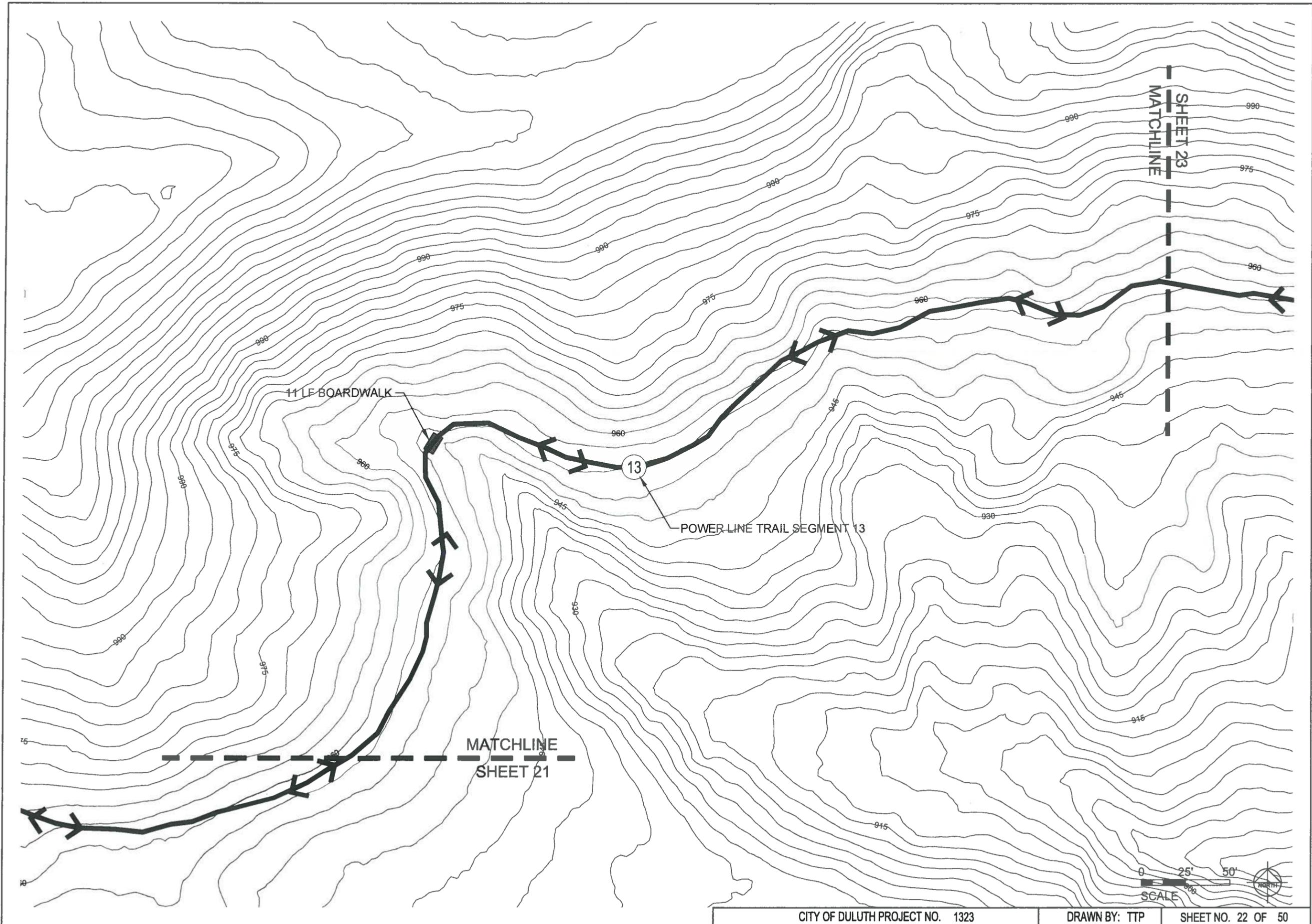


CITY OF DULUTH PROJECT NO. 1323

DRAWN BY: TTP

SHEET NO. 21 OF 50

21



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PHASE II**
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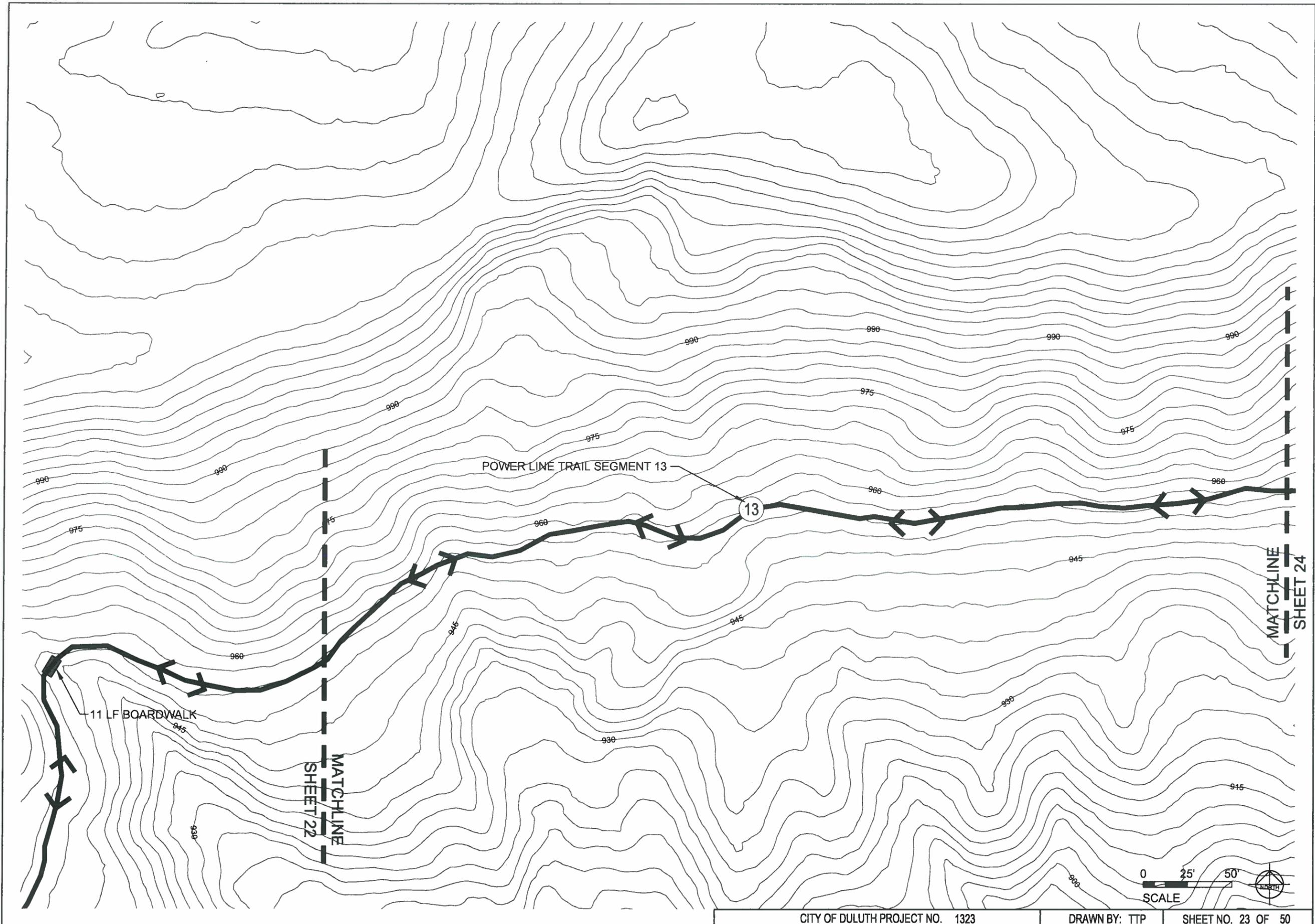
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JAMES M. SROBERG 45577
LANDSCAPE ARCHITECT REG. NO.

**POWER LINE
TRAIL**

22



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**DULUTH
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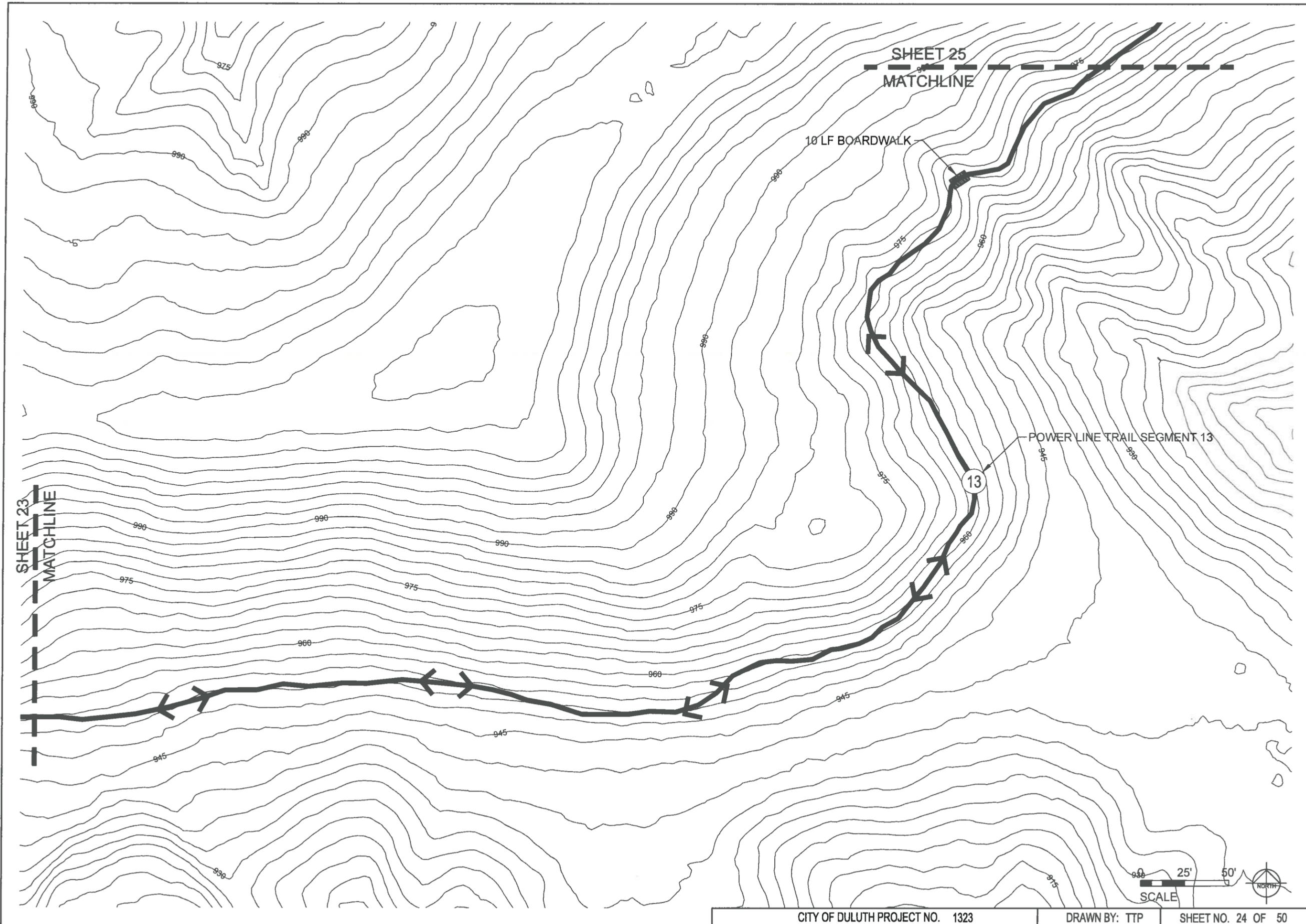
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JAMES M. SNOBERG 45577
LANDSCAPE ARCHITECT REG. NO.

**POWER LINE
TRAIL**

23



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TRAIL
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PHASE II
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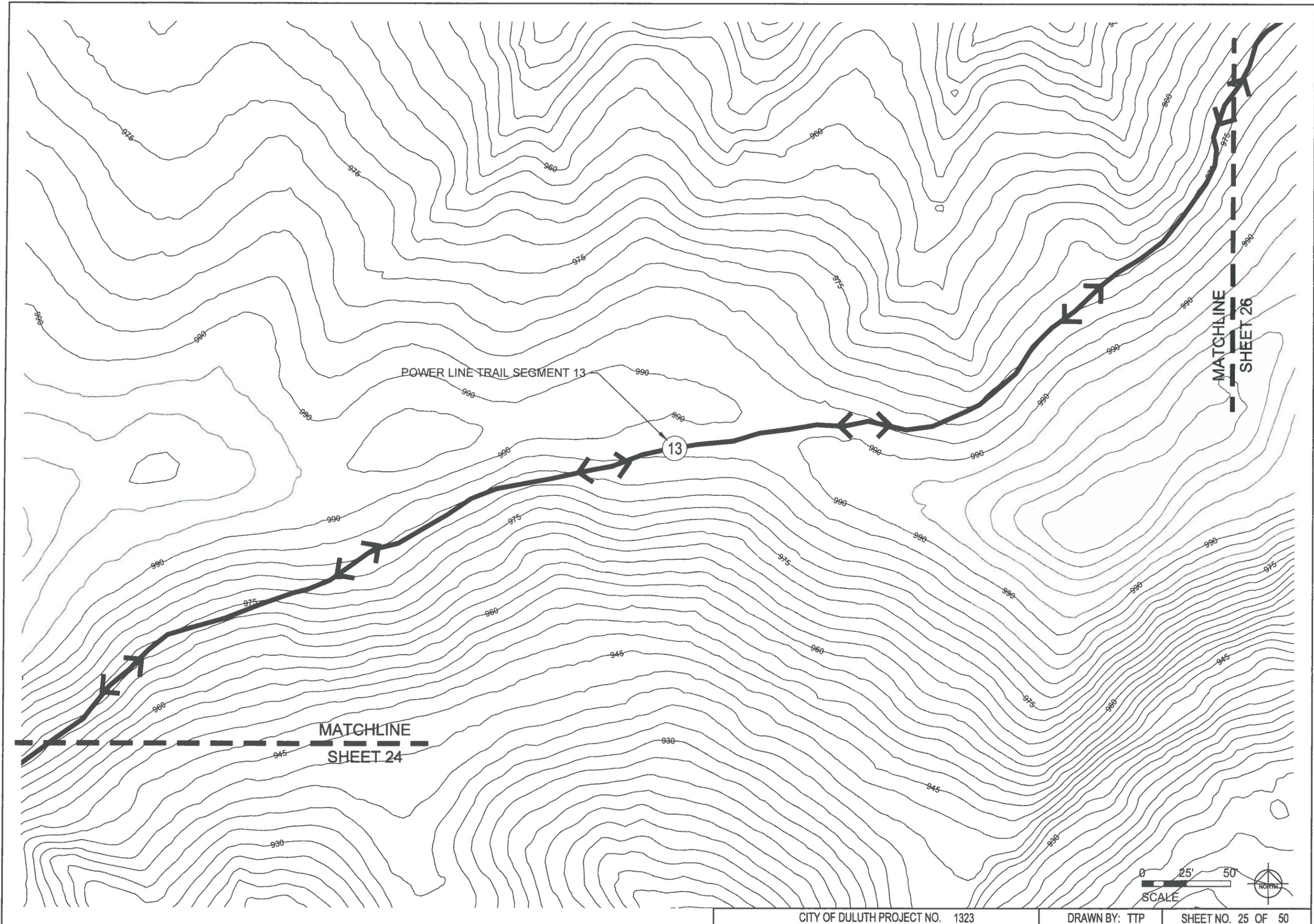
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JAMES M. SPOBERG 45577
LANDSCAPE ARCHITECT REG. NO.

**POWER LINE
TRAIL**





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PROJECT NO.: 12-039.1

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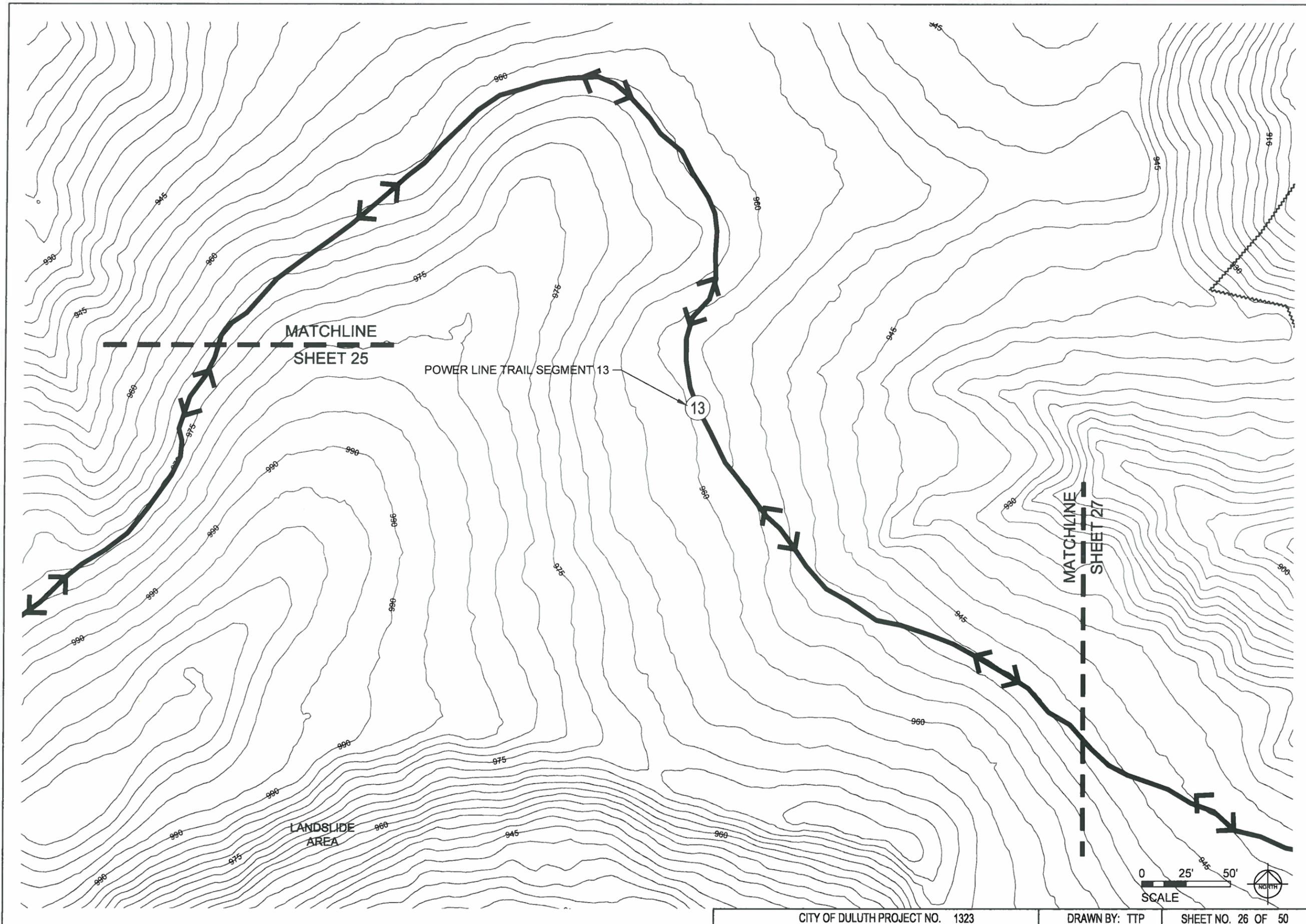
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JAMES M. SROBERG 45577
LANDSCAPE ARCHITECT REG. N.S.

**POWER LINE
TRAIL**

25



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PHASE II**
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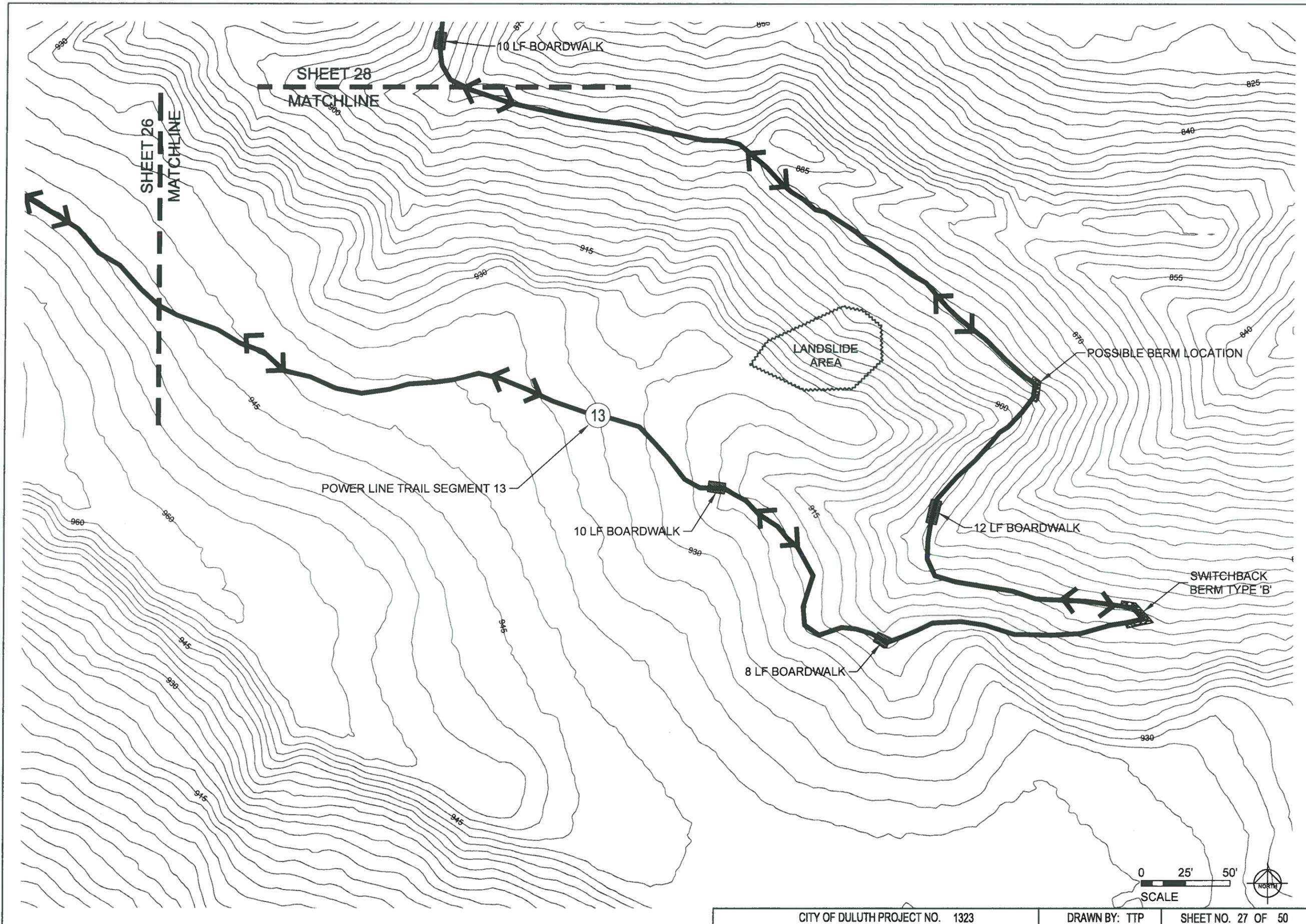
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JAMES M. SROBERG 45577
LANDSCAPE ARCHITECT REG. MS.

**POWER LINE
TRAIL**

26



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DULUTH
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TRAIL
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PHASE II
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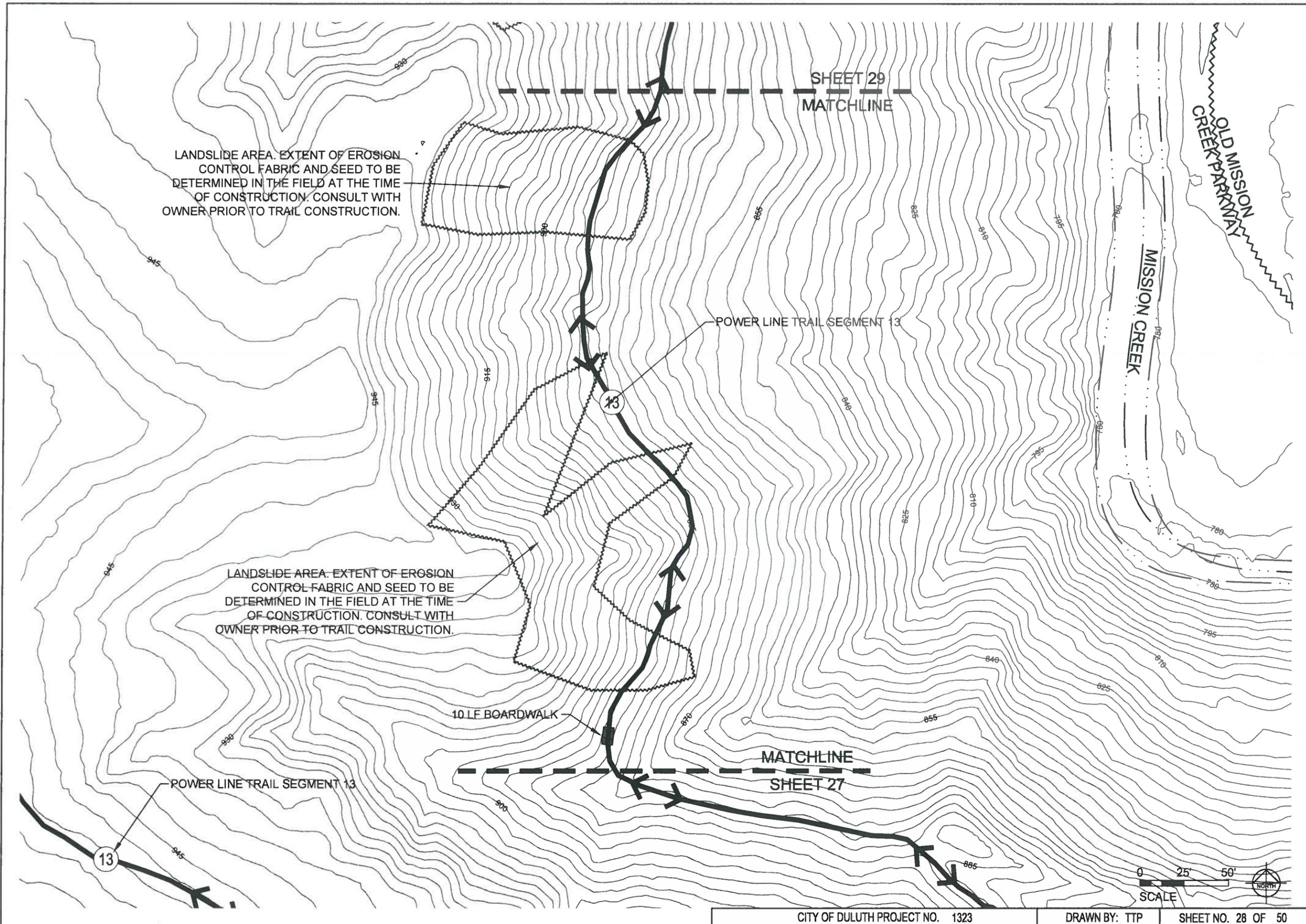
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JAMES M. SPOBERG 45577
LANDSCAPE ARCHITECT

POWER LINE
TRAIL

27



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PHONE 218-727-8481
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EMAIL: archres@cpintnet.com



DULUTH TRAVERSE TRAIL MISSION CREEK PHASE II
DULUTH, MINNESOTA

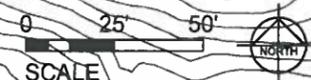
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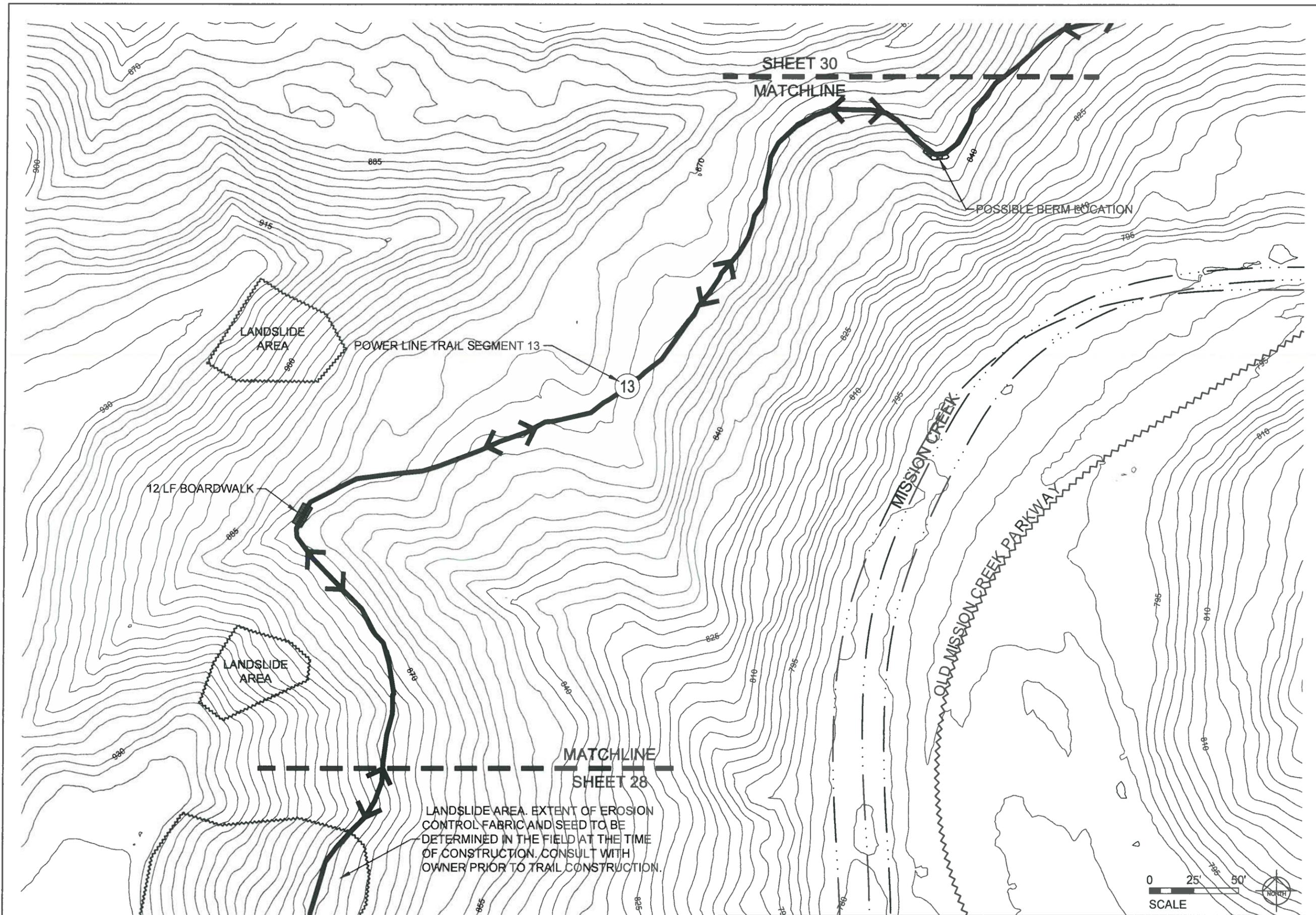
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JAMES M. SPOBERG 45577
LANDSCAPE ARCHITECT REG. 115

POWER LINE TRAIL

28





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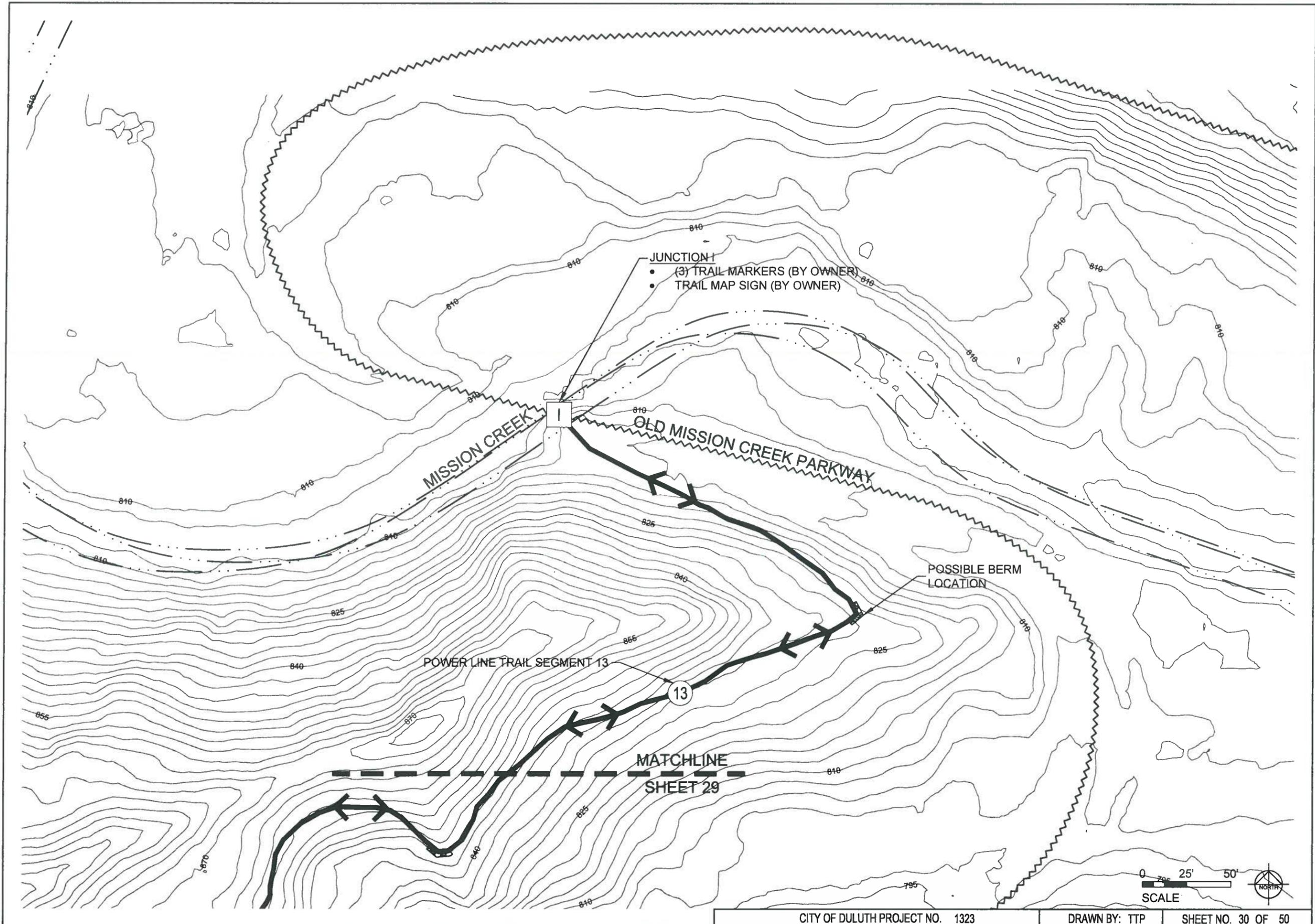
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JAMES M. SNOBERG 45577
LANDSCAPE ARCHITECT REG. NO.

**POWER LINE
TRAIL**

29



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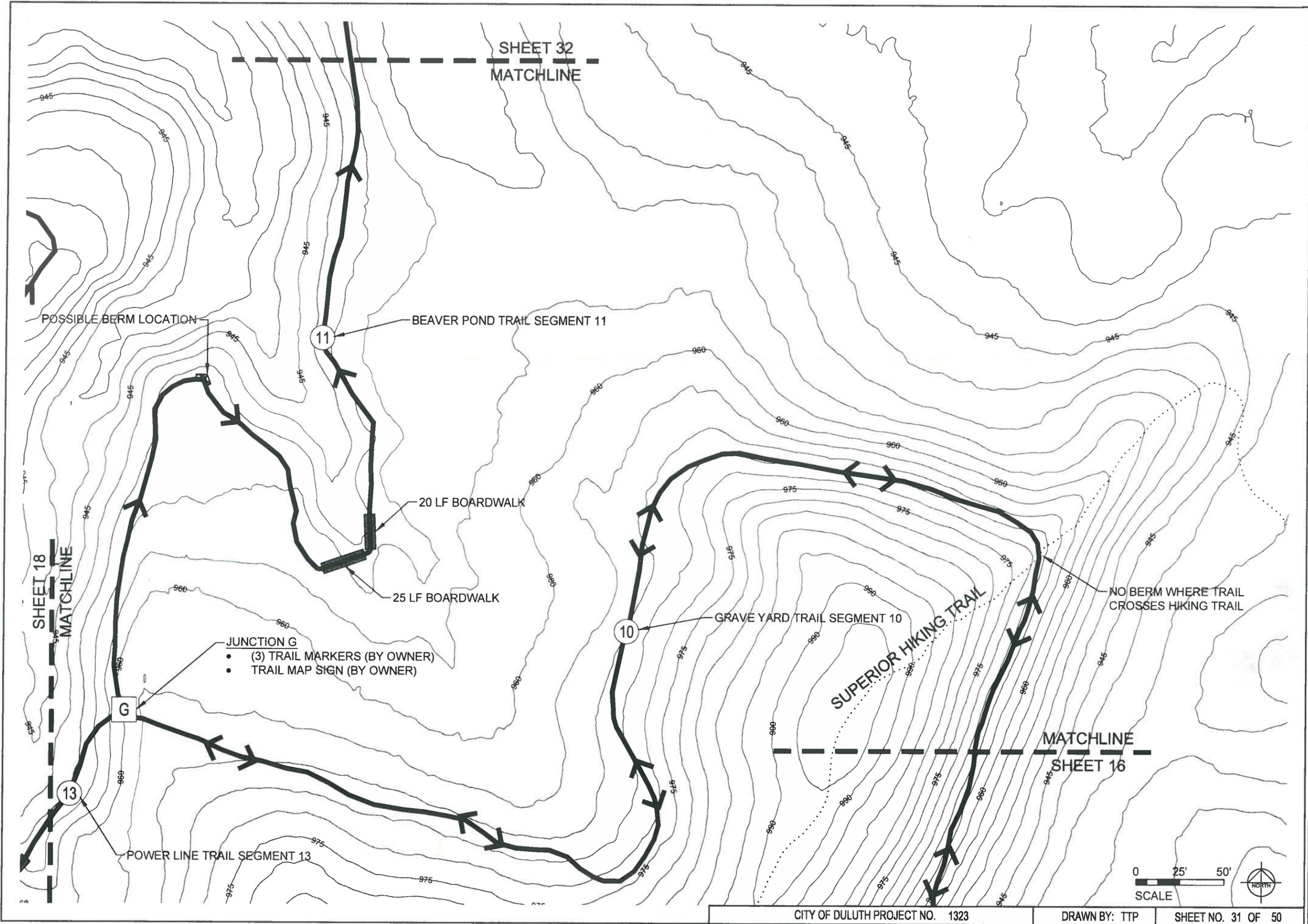
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JAMES M. SPOBERG 45577
LANDSCAPE ARCHITECT REG. NO.

POWER LINE
TRAIL

30



- JUNCTION G
- (3) TRAIL MARKERS (BY OWNER)
 - TRAIL MAP SIGN (BY OWNER)



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**DULUTH
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TRAIL
MISSION CREEK
PHASE II**
DULUTH, MINNESOTA

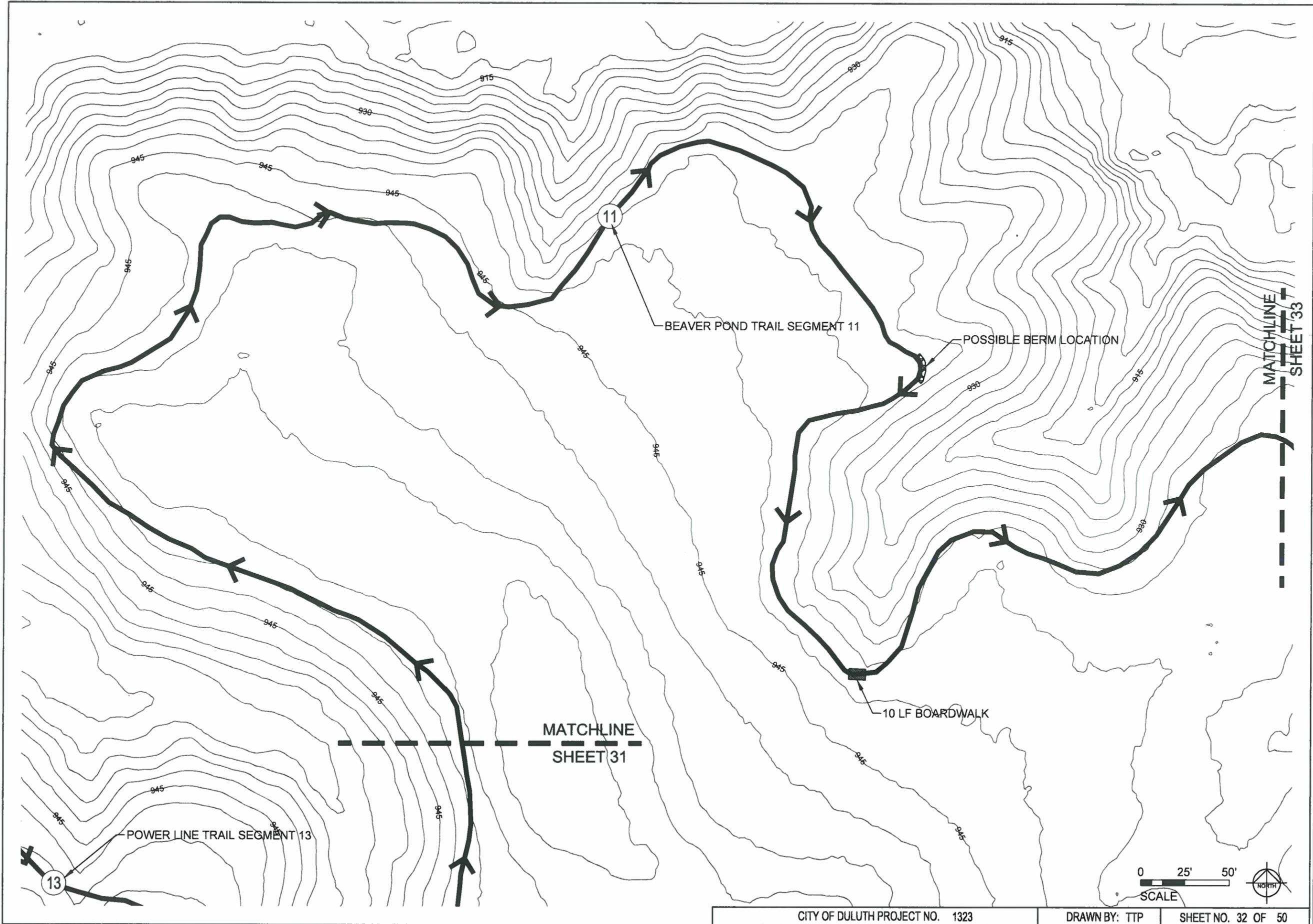
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JAMES M. SPOBERG 45577
LANDSCAPE ARCHITECT

**BEAVER
POND TRAIL**

31



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TRAIL
MISSION CREEK
PHASE II**
DULUTH, MINNESOTA

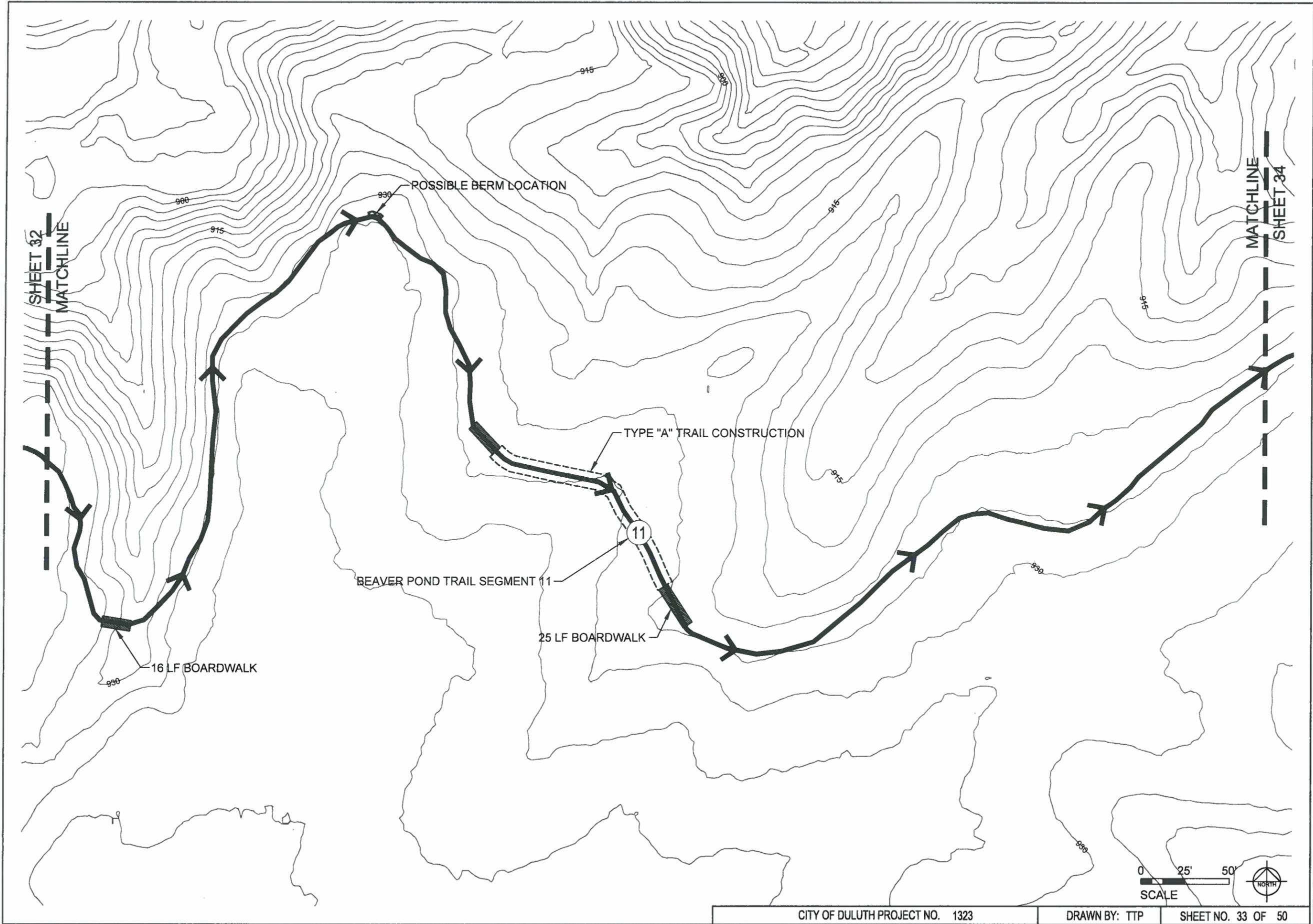
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OF THE STATE OF MINNESOTA.

JAMES M. SPOBERG 45577
LANDSCAPE ARCHITECT (REG. 103)

**BEAVER
POND TRAIL**

32



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JAMES M. SROBERG 45577
LANDSCAPE ARCHITECT REG. NO.

**BEAVER
POND TRAIL**

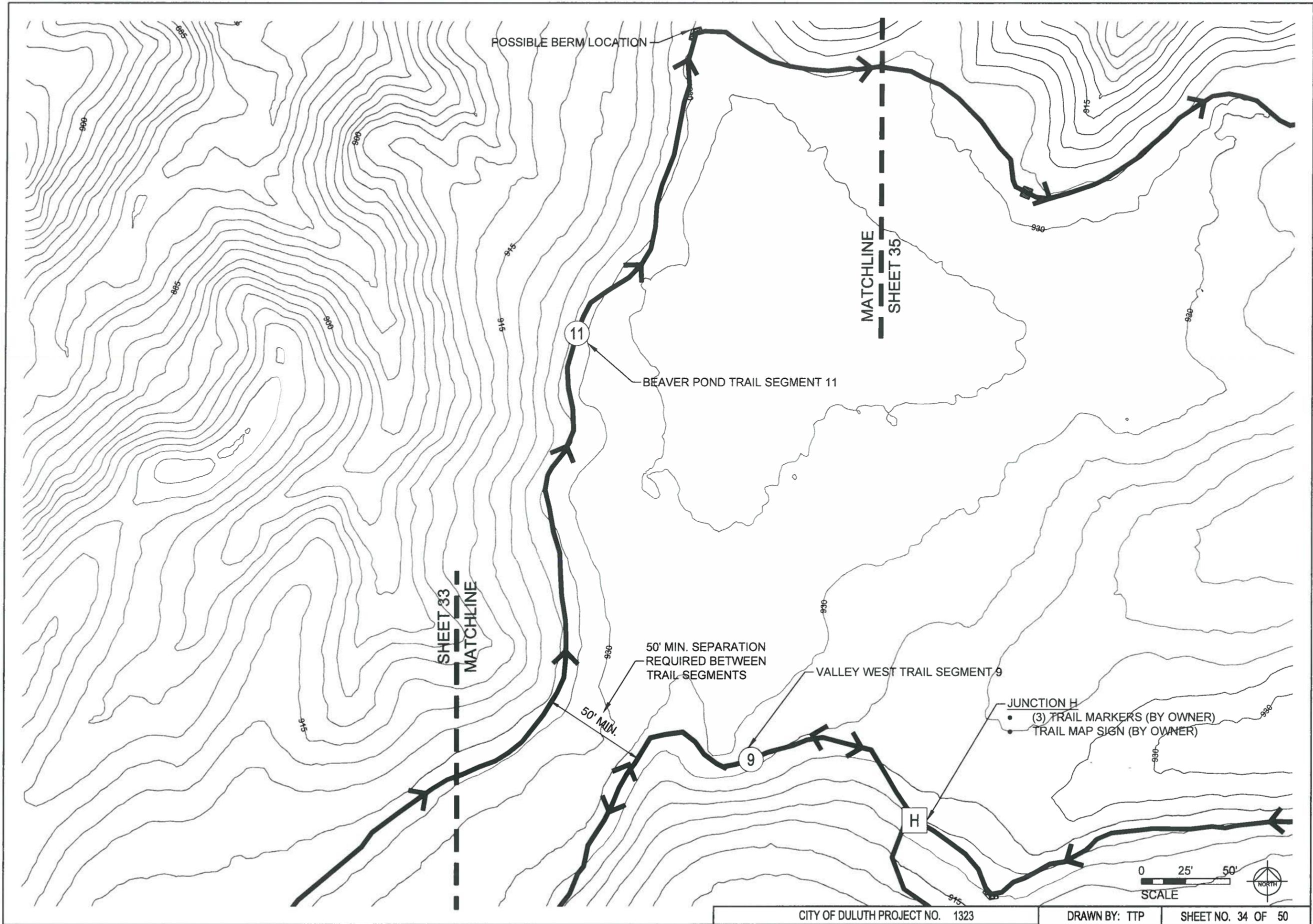


CITY OF DULUTH PROJECT NO. 1323

DRAWN BY: TTP

SHEET NO. 33 OF 50

33



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MISSION CREEK
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DULUTH, MINNESOTA**

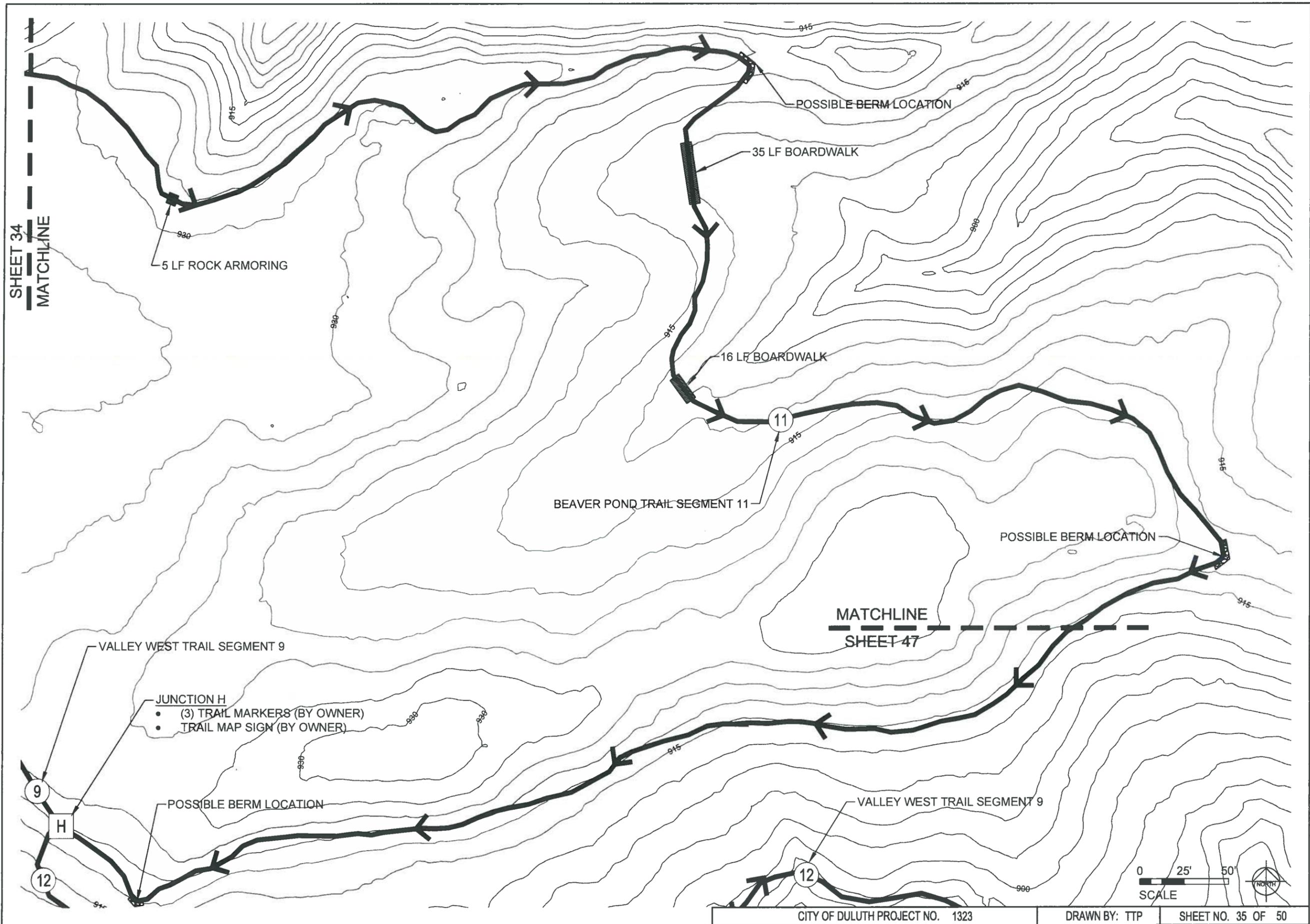
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LANDSCAPE ARCHITECT REG. NO.

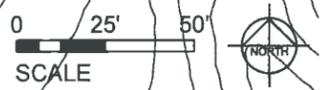
**BEAVER
POND TRAIL**

34



SHEET 34
MATCHLINE

MATCHLINE
SHEET 47



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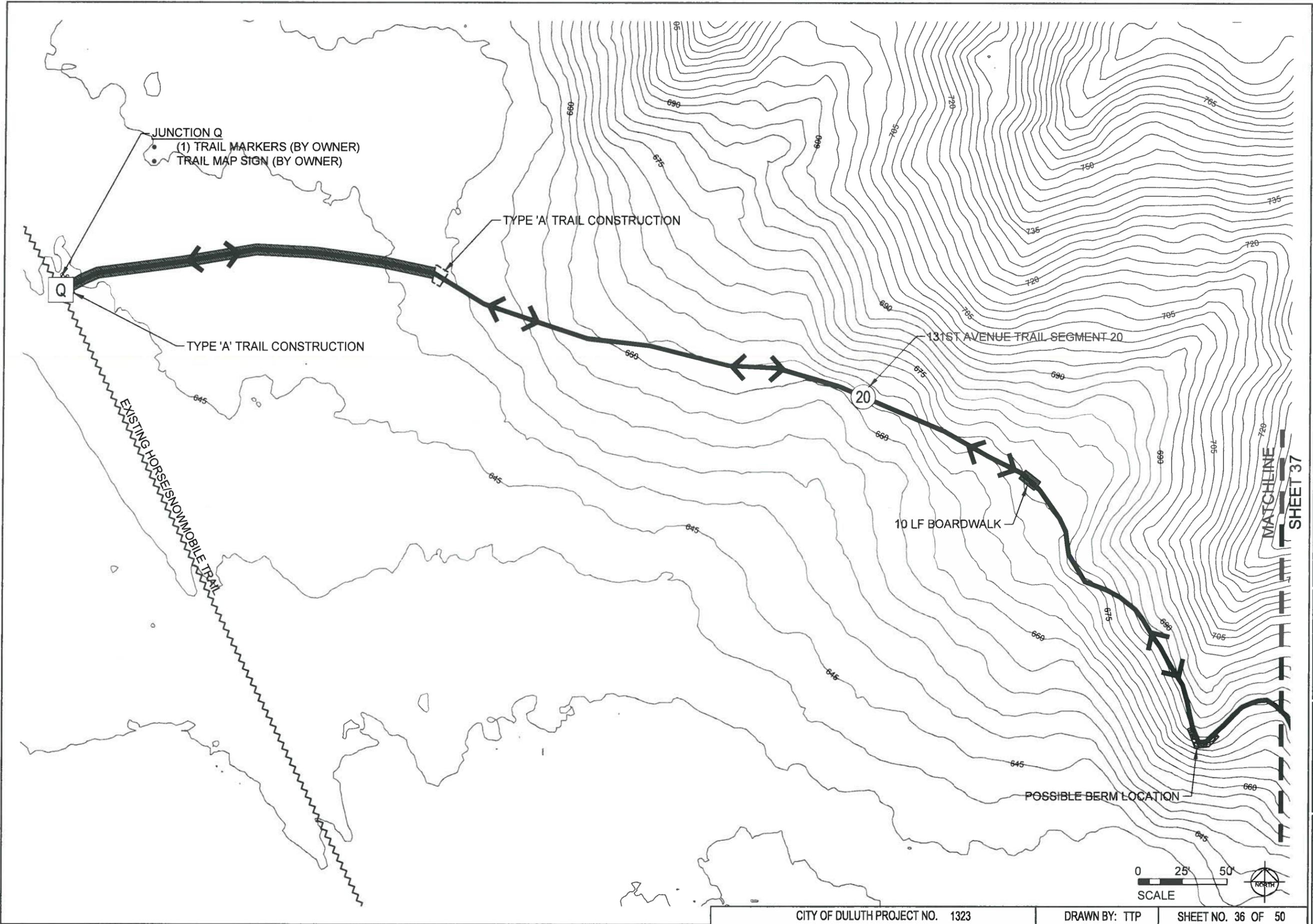
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DULUTH, MINNESOTA

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LANDSCAPE ARCHITECT REG. PLS.

**BEAVER
POND TRAIL**



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**DULUTH
TRAVERSE
TRAIL
MISSION CREEK
PHASE II**

DULUTH, MINNESOTA

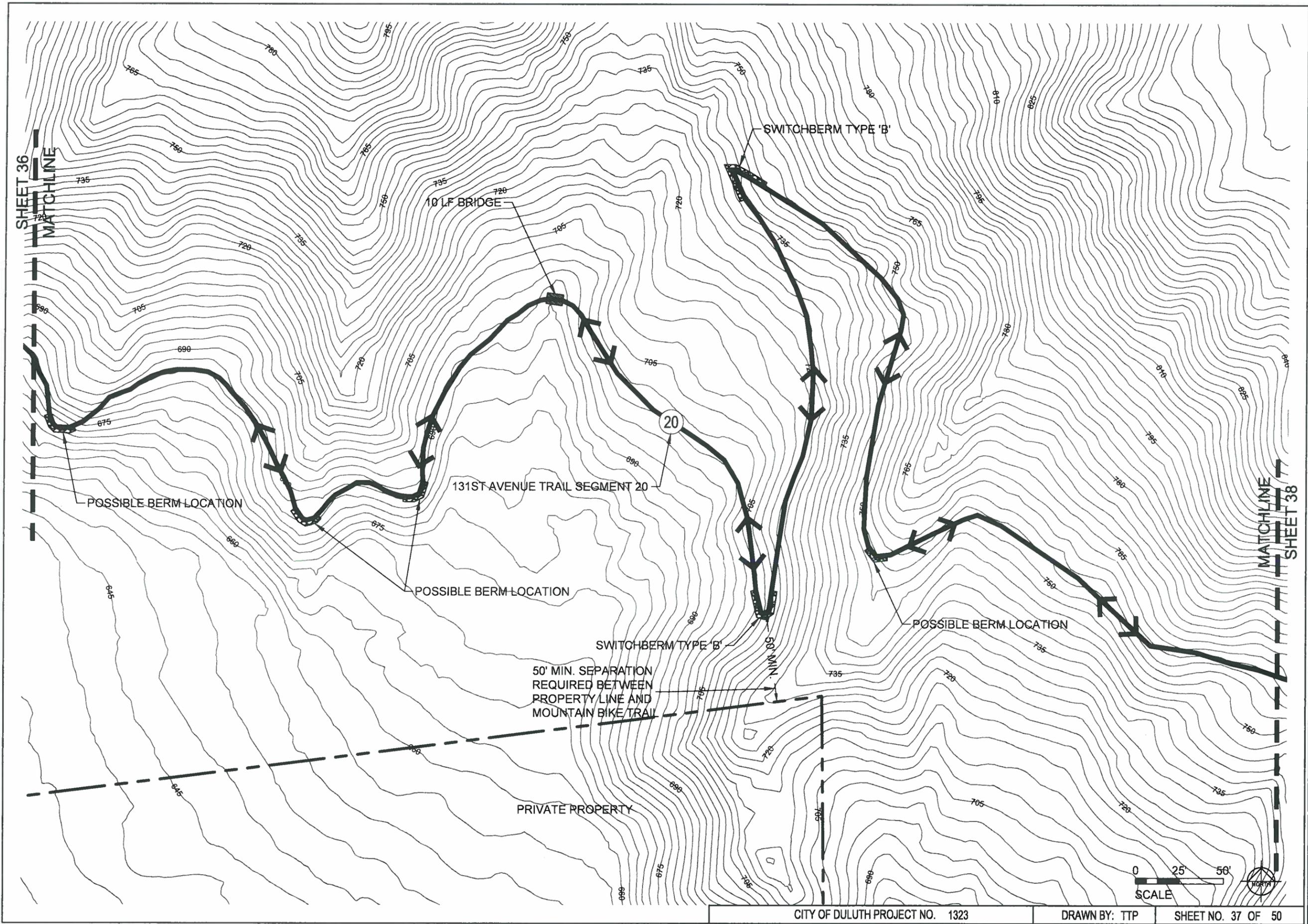
PROJECT NO: 12-039.1
DATE: MAR-27-2014
DRAWN BY: TTP
REVISIONS:

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JAMES M. SPOBERG 45577
LANDSCAPE ARCHITECT REG. 512

**131ST AVE.
TRAIL**

36



SHEET 36

MATCHLINE

MATCHLINE

SHEET 38



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EMAIL: arcras@cpinternet.com



DULUTH TRVERSE TRAIL MISSION CREEK PHASE II

DULUTH, MINNESOTA

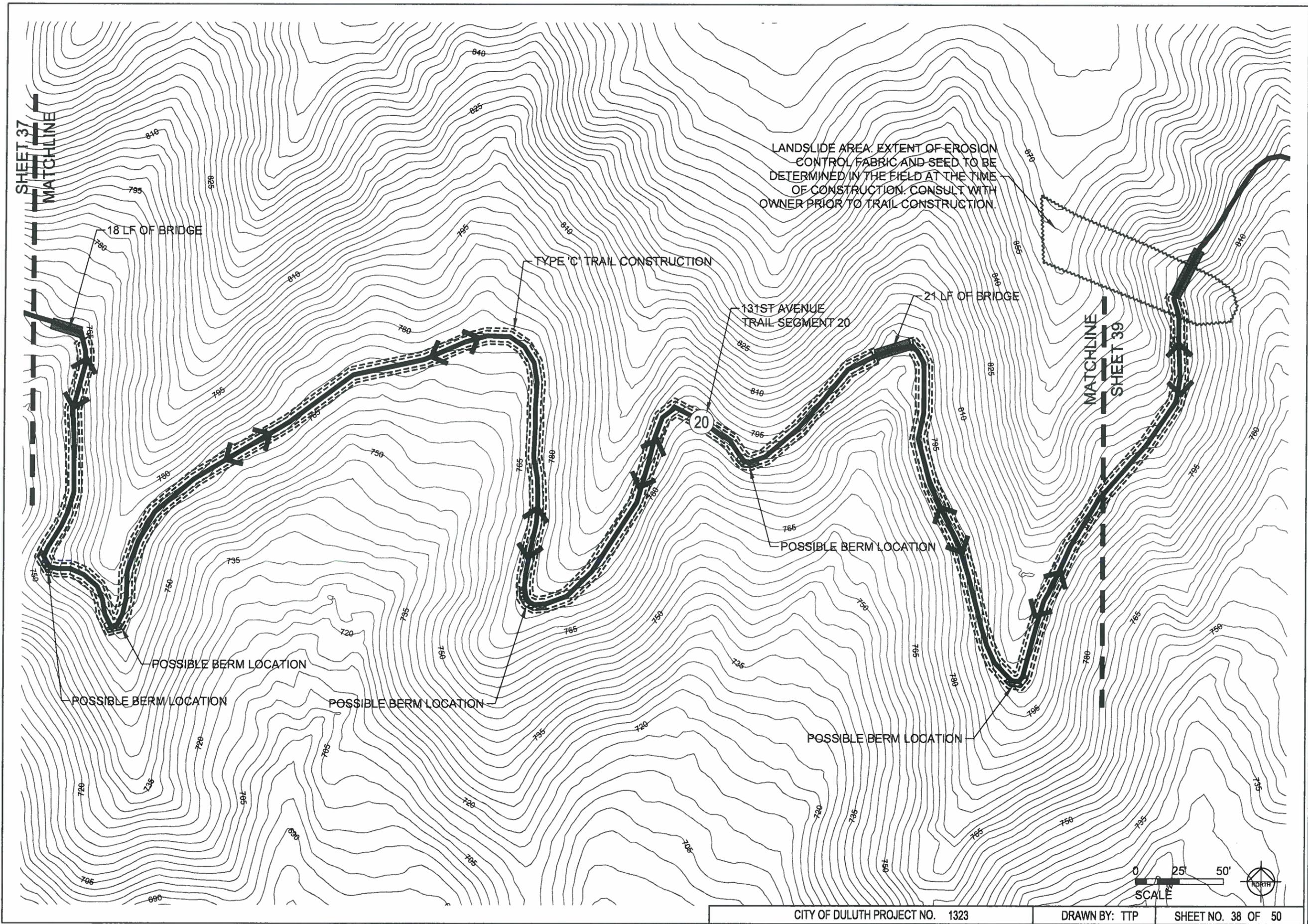
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JAMES M. SPOBERG
LANDSCAPE ARCHITECT 45577

131ST AVE. TRAIL

37



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**DULUTH
TRAVERSE
TRAIL
MISSION CREEK
PHASE II**
DULUTH, MINNESOTA

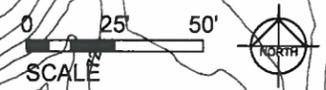
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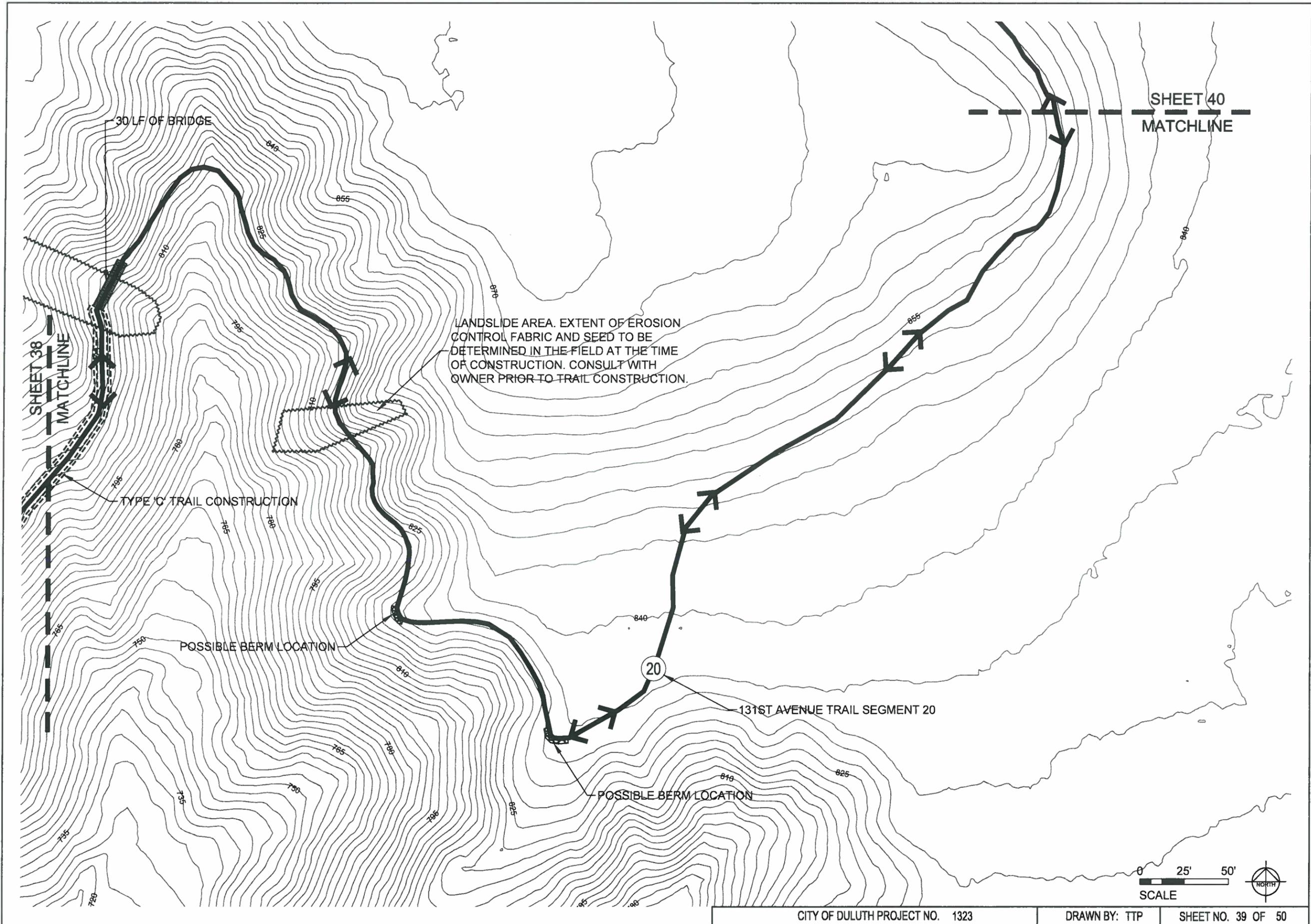
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JAMES M. SPROBERG 45577
LANDSCAPE ARCHITECT

**131ST AVE.
TRAIL**

38





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DULUTH TRVERSE TRAIL MISSION CREEK PHASE II DULUTH, MINNESOTA

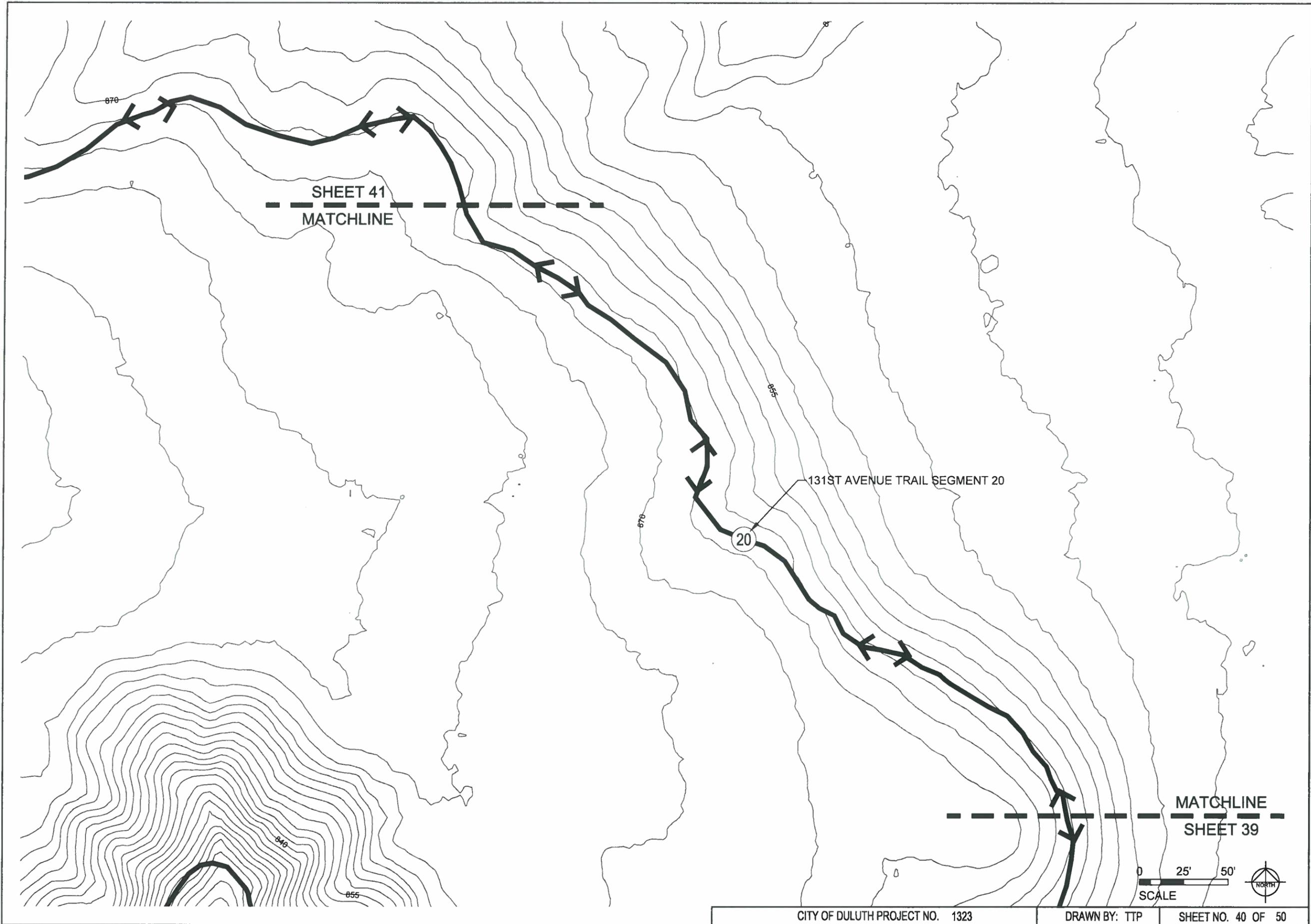
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JAMES M. SROBERG 45577
LANDSCAPE ARCHITECT REG. 163

131ST AVE. TRAIL

39



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**DULUTH
TRAVERSE
TRAIL
MISSION CREEK
PHASE II
DULUTH, MINNESOTA**

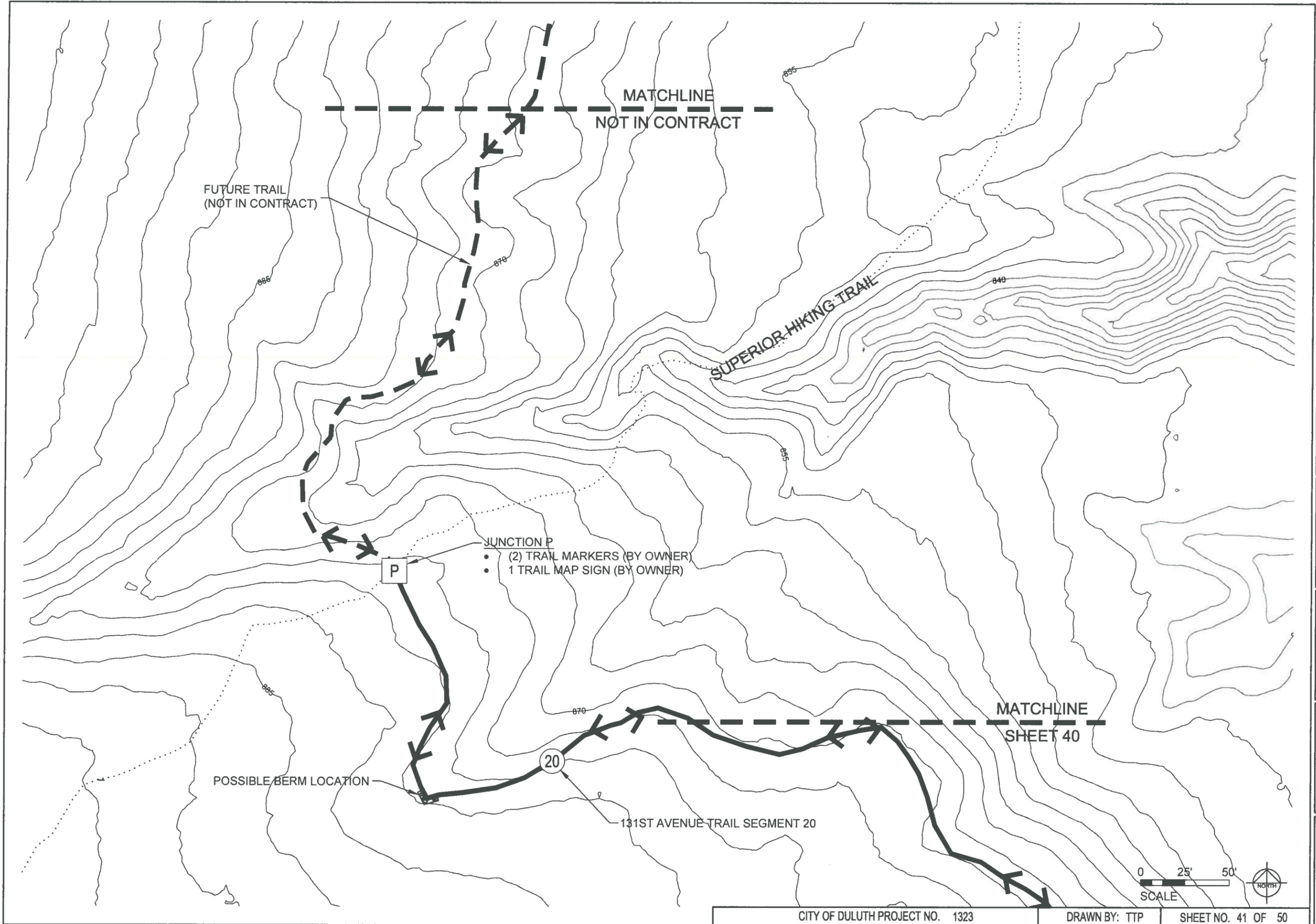
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JAMES M. SÄBERG 45577
LANDSCAPE ARCHITECT (P.L.S.)

**131ST AVE.
TRAIL**

40



- JUNCTION P
- (2) TRAIL MARKERS (BY OWNER)
 - 1 TRAIL MAP SIGN (BY OWNER)



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DULUTH TRAVERSE TRAIL MISSION CREEK PHASE II
 DULUTH, MINNESOTA

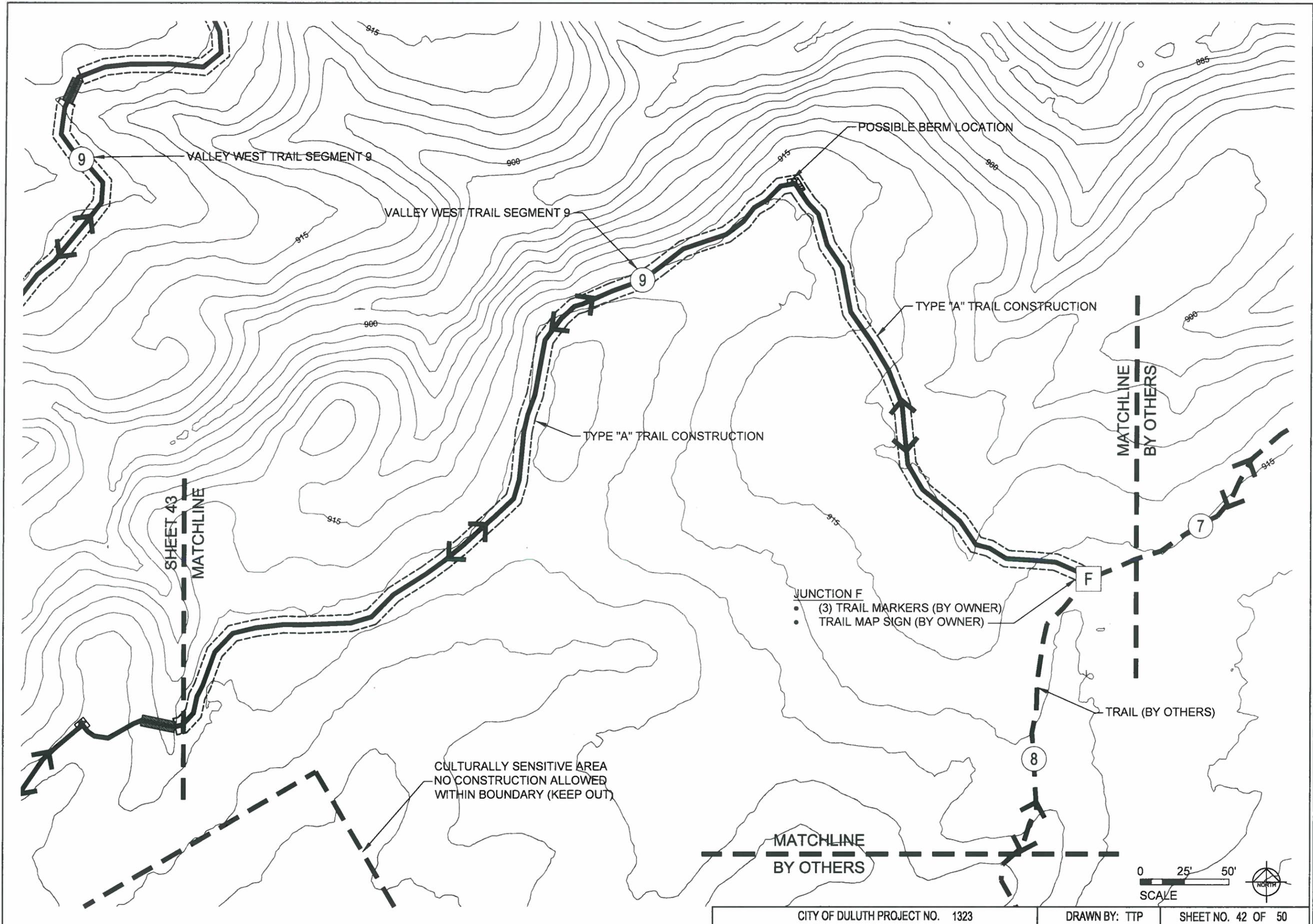
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JAMES M. SPOBERG 45577
 LANDSCAPE ARCHITECT REG. NO.

131ST AVE. TRAIL

41



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**DULUTH
TRAVERSE
TRAIL
MISSION CREEK
PHASE II**

DULUTH, MINNESOTA

PROJECT NO. 12-039.1

DATE: MAR-27-2014

DRAWN BY: TTP

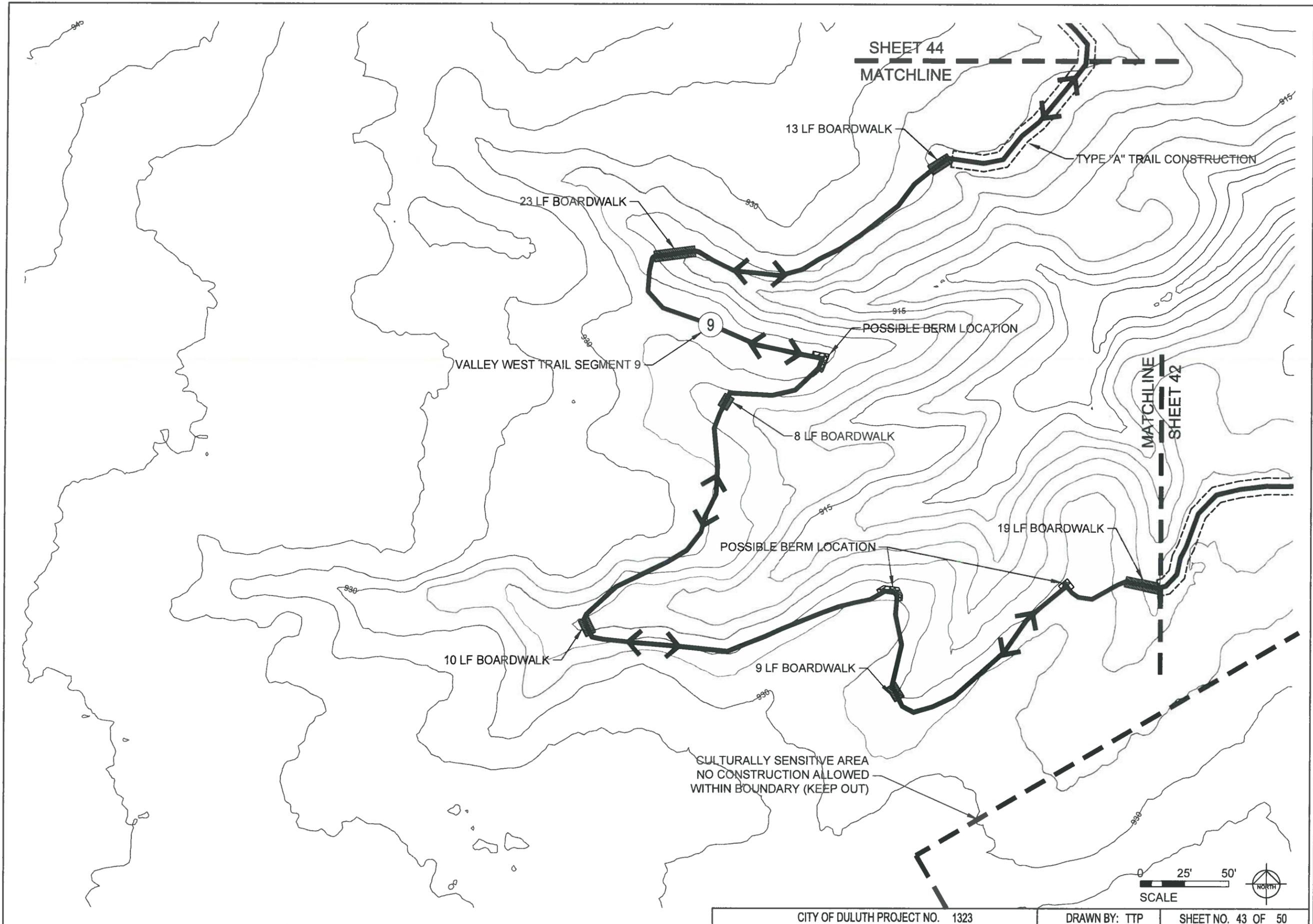
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JAMES M. SPOBERG 45577
LANDSCAPE ARCHITECT

**VALLEY
WEST TRAIL
(Alternate #1)**

42



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**DULUTH
TRAVERSE
TRAIL
MISSION CREEK
PHASE II**
DULUTH, MINNESOTA

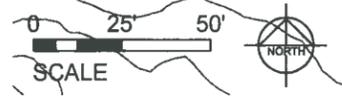
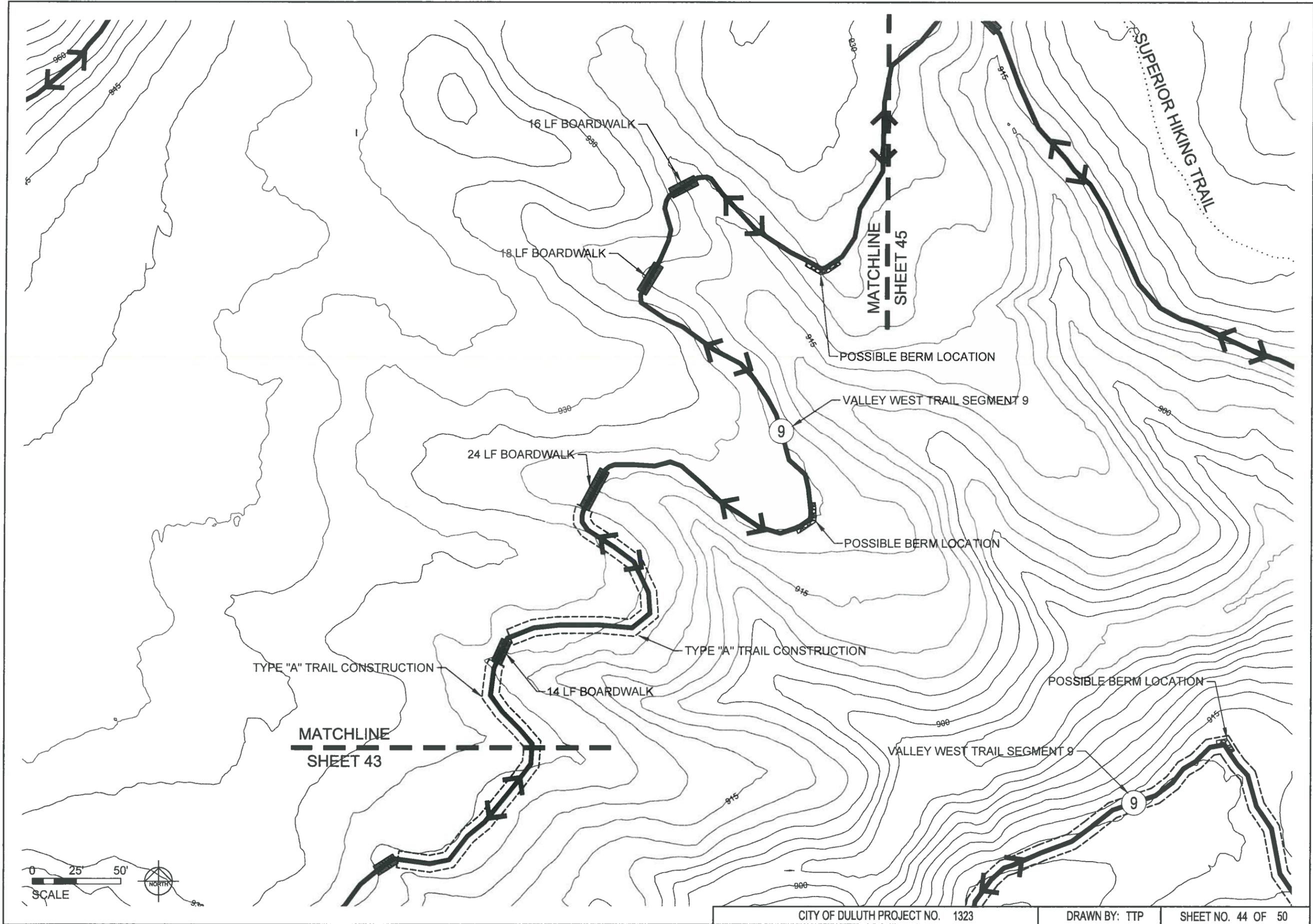
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LANDSCAPE ARCHITECT UNDER THE LAWS
OF THE STATE OF MINNESOTA.

JAMES M. SROBERG 45577
LANDSCAPE ARCHITECT REG. IN MN

**VALLEY
WEST TRAIL
(Alternate #1)**

43



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**DULUTH
TRAVERSE
TRAIL
MISSION CREEK
PHASE II
DULUTH, MINNESOTA**

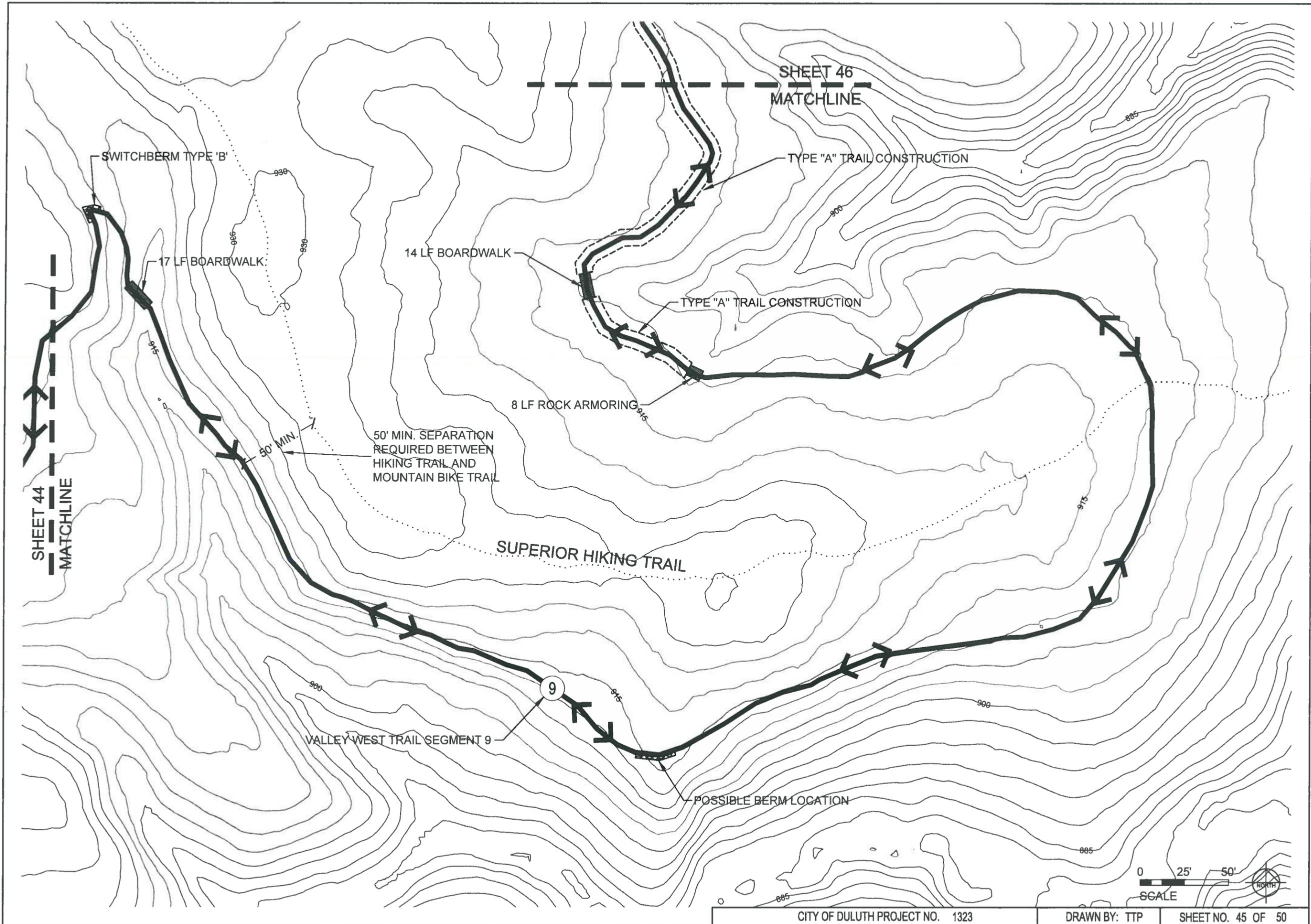
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JAMES M. SROBERG 45577
LANDSCAPE ARCHITECT REG. NO.

**VALLEY
WEST TRAIL
(Alternate #1)**

44



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EMAIL: arins@cpinternet.com



**DULUTH
TRAVERSE
TRAIL
MISSION CREEK
PHASE II**

DULUTH, MINNESOTA

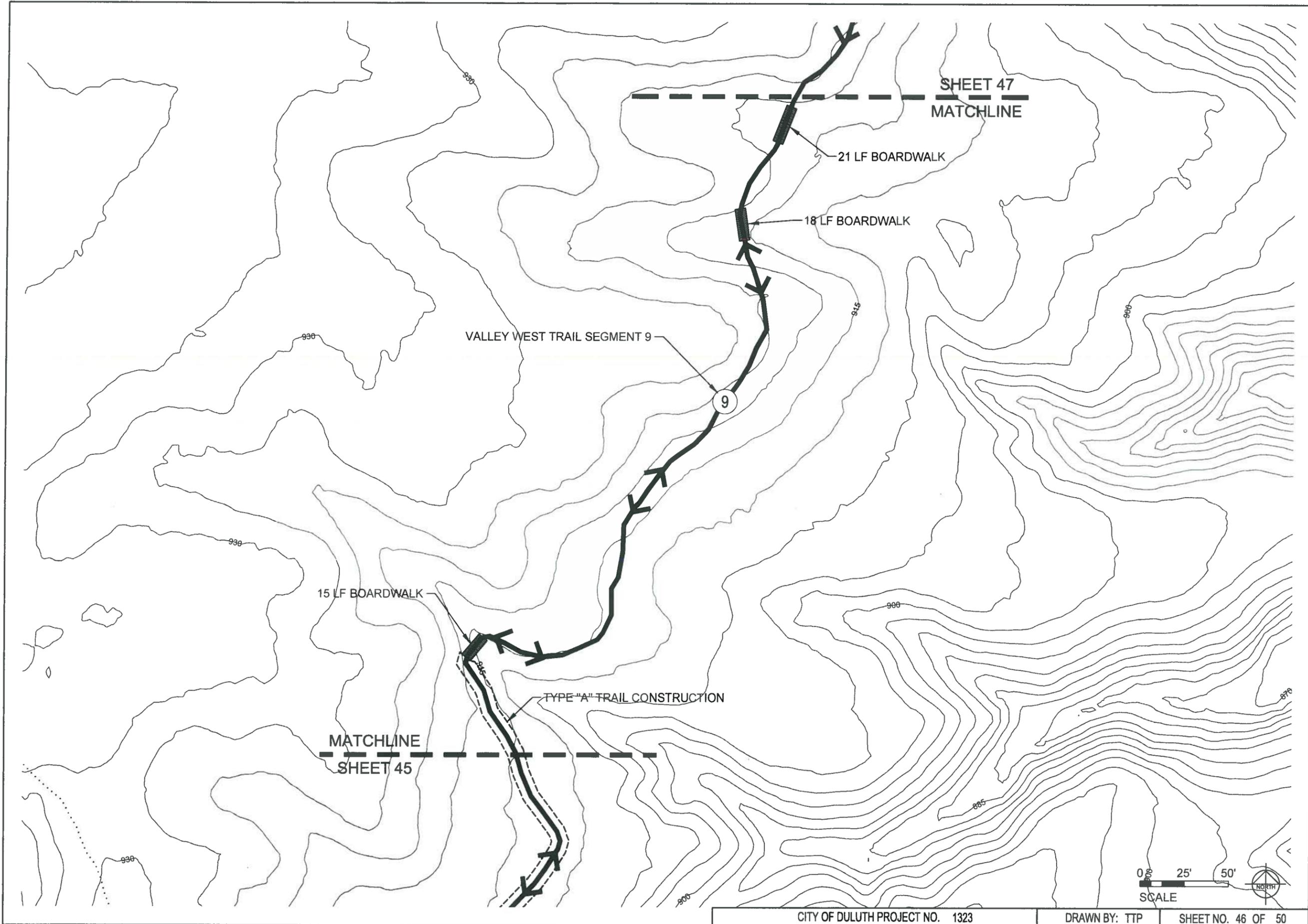
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JAMES M. SPOBERG 45577
LANDSCAPE ARCHITECT

**VALLEY
WEST TRAIL
(Alternate #1)**





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**DULUTH
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PROJECT NO.: 12-039.1

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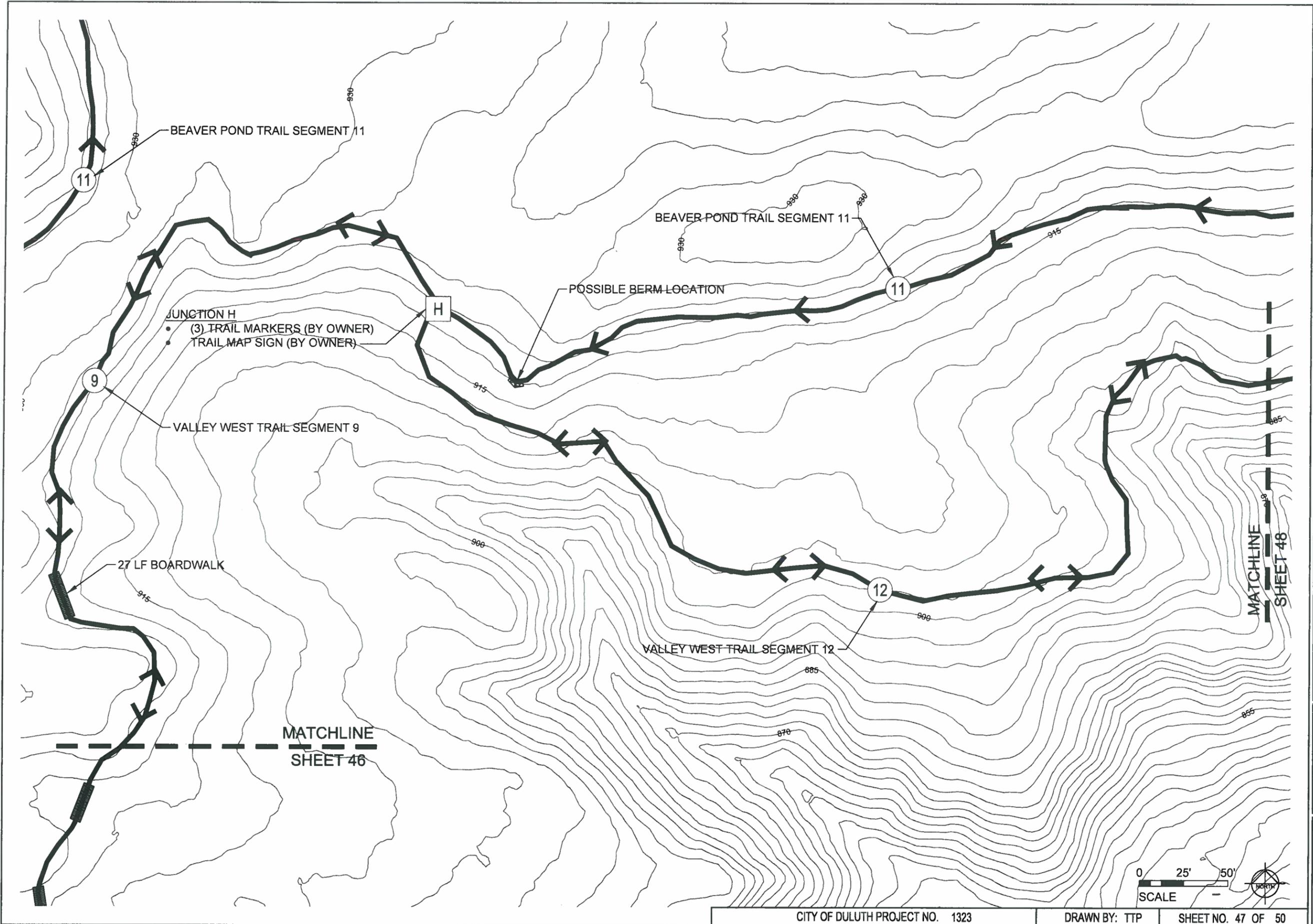
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JAMES M. SROBERG 45577
LANDSCAPE ARCHITECT REG. MINN.

**VALLEY
WEST TRAIL
(Alternate #1)**

46



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**DULUTH
 TRAVERSE
 TRAIL
 MISSION CREEK
 PHASE II**

DULUTH, MINNESOTA

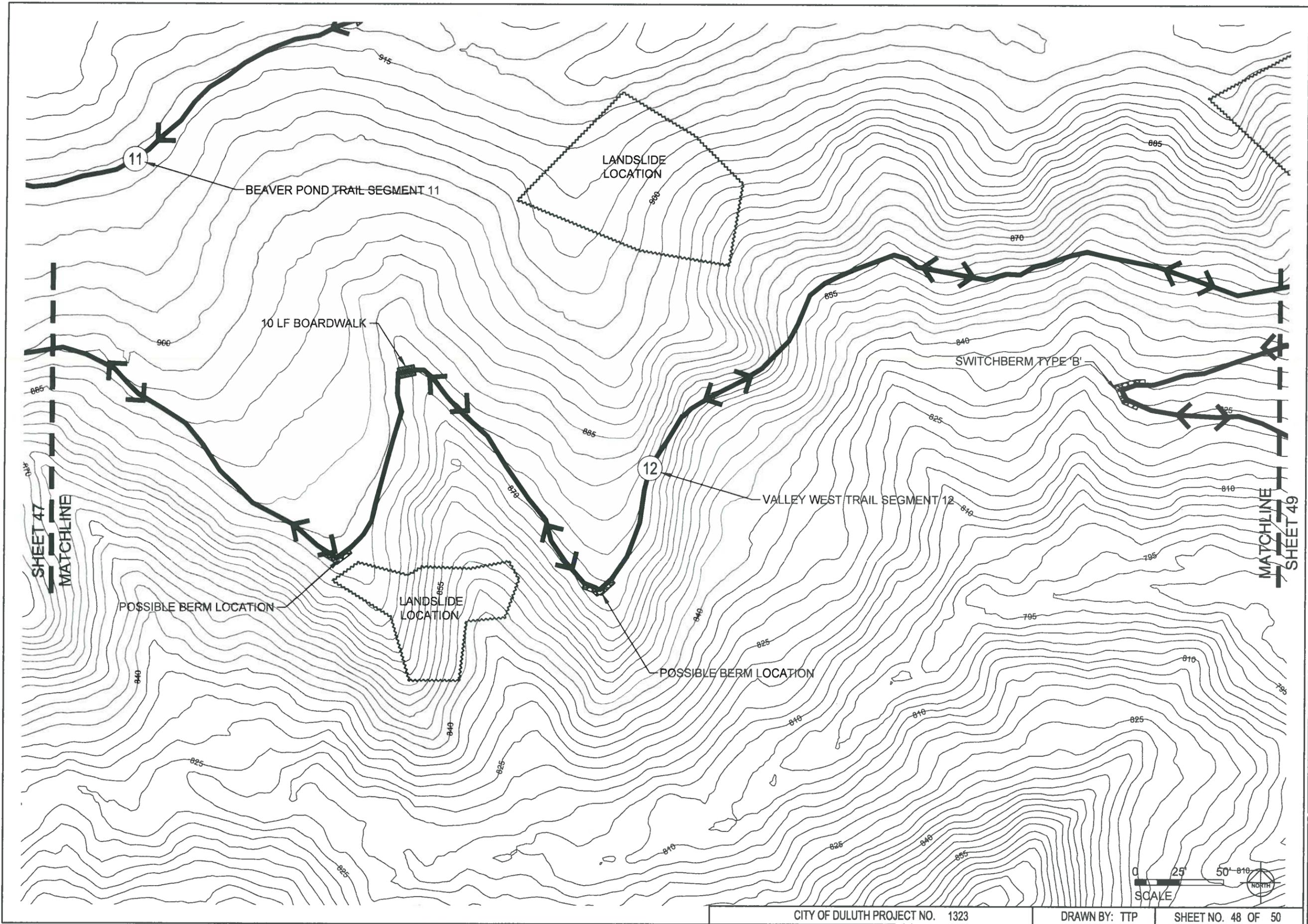
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 LANDSCAPE ARCHITECT REG. #13

**VALLEY
 WEST TRAIL
 (Alternate #1)**

47



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**DULUTH
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TRAIL
MISSION CREEK
PHASE II**
DULUTH, MINNESOTA

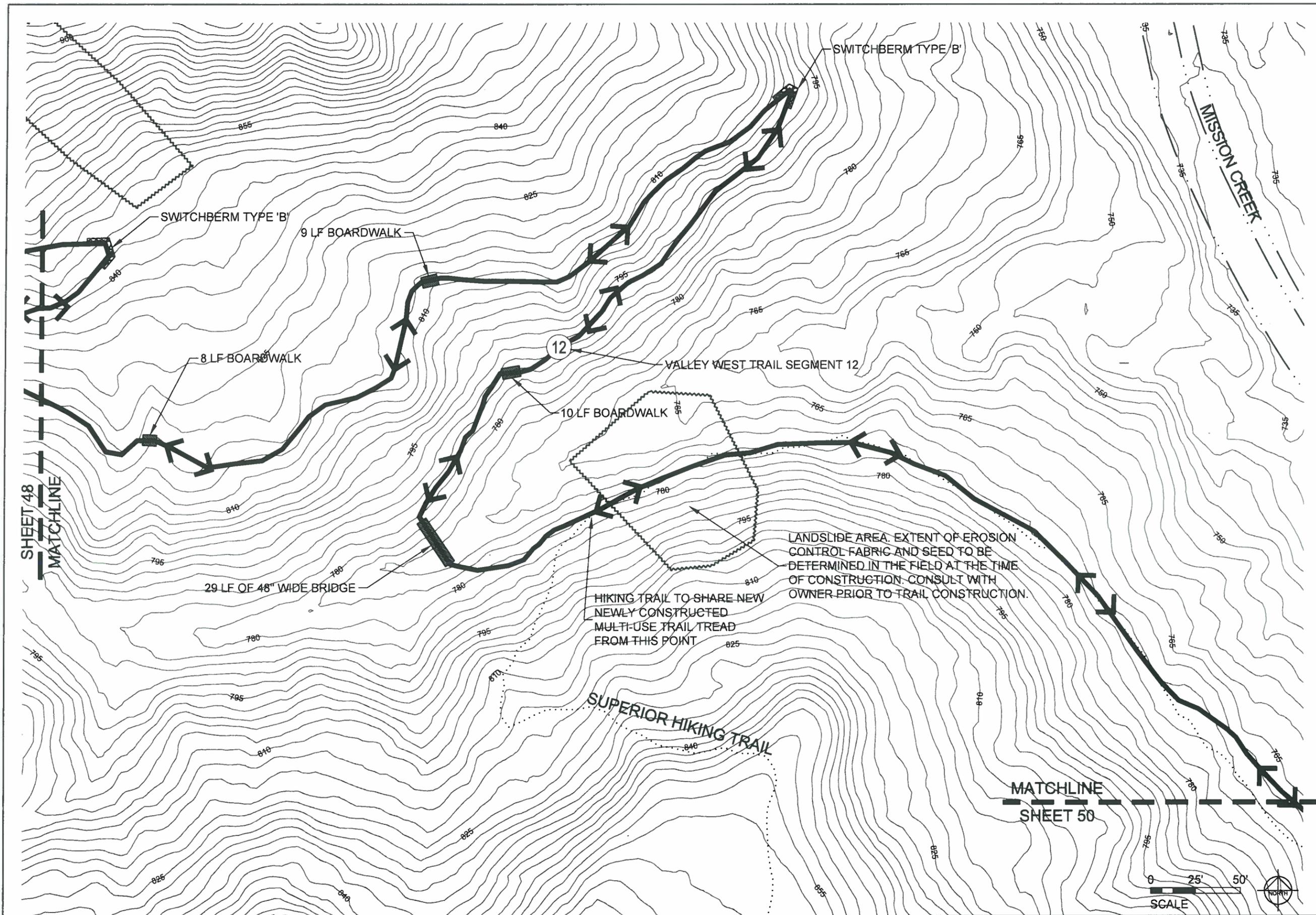
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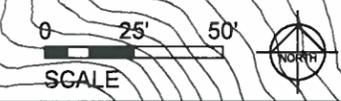
**VALLEY
WEST TRAIL
(Alternate #1)**

48



SHEET 48
MATCHLINE

MATCHLINE
SHEET 50



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**DULUTH
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TRAIL
MISSION CREEK
PHASE II**
DULUTH, MINNESOTA

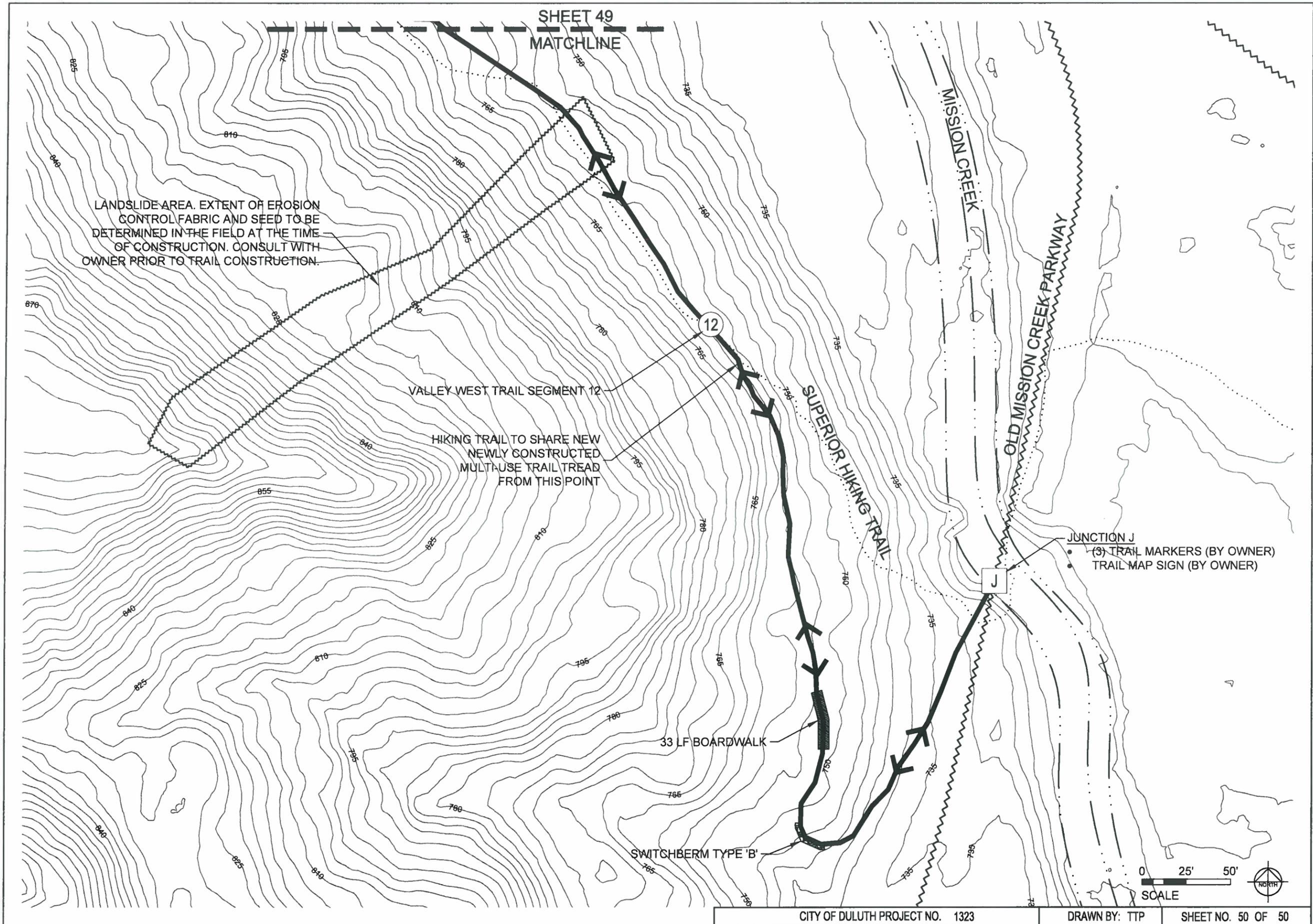
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DULUTH TRVERSE TRAIL MISSION CREEK PHASE II

DULUTH, MINNESOTA

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LANDSCAPE ARCHITECT REG. 113

VALLEY WEST TRAIL (Alternate #1)

50