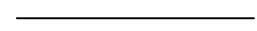
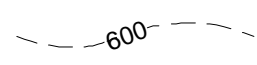




CITY OF DULUTH

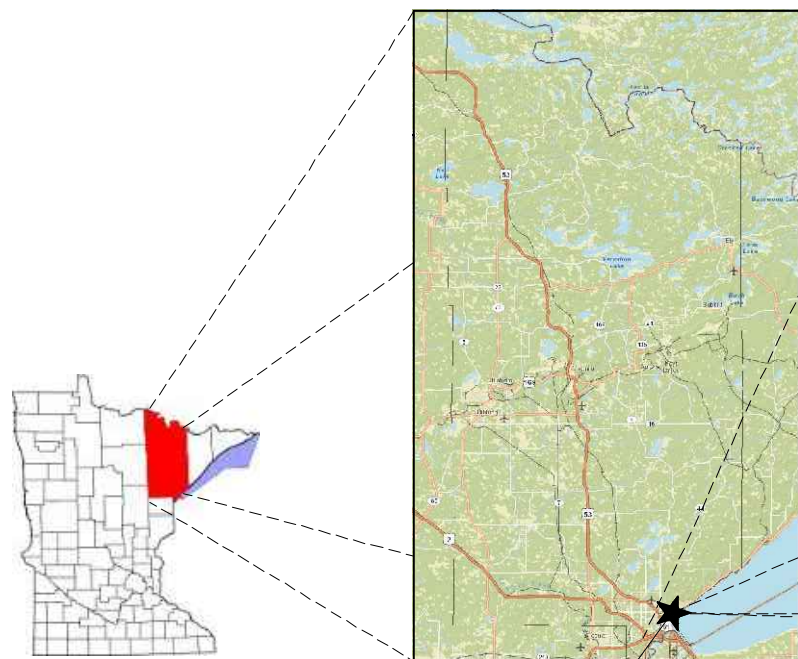
DEPARTMENT OF PARKS AND RECREATION

PLAN SYMBOLS

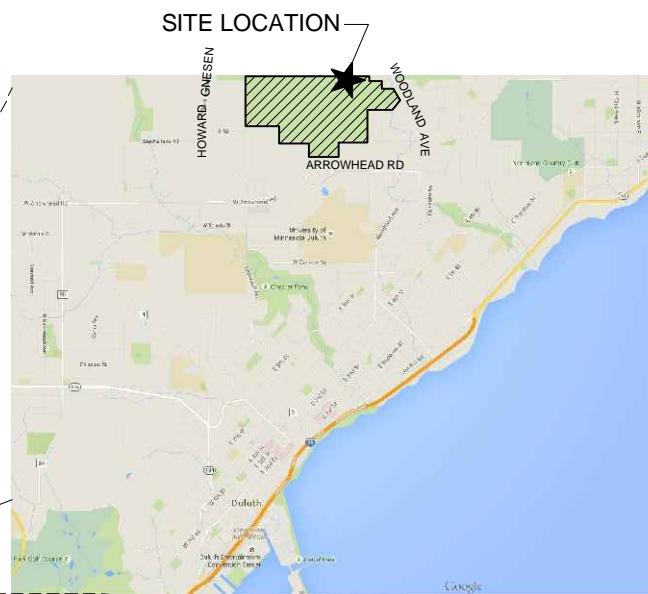
	PROPERTY LINES
	EXISTING CONTOUR LINES ONE FOOT INTERVAL
	TRAIL CONSTRUCTION TYPE "A" CENTER LINE OF PROPOSED TRAIL - GAZEBO POINT
	TRAIL CONSTRUCTION TYPE "A" CENTER LINE OF PROPOSED TRAIL CORRIDOR HARTLEY NATURE CENTER TO HARTLEY POND

CONSTRUCTION PLANS FOR: HARTLEY PARK TRAIL IMPROVEMENTS

CITY PROJECT NO.



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/publ/fieldmanual2011/index.html>

THE 2015 EDITION OF THE CITY OF DULUTH PUBLIC WORKS AND UTILITIES DEPARTMENT
STANDARD CONSTRUCTION SPECIFICATIONS AND SUPPLEMENTS OR ADDENDUMS SHALL
APPLY. _____ SHALL BE THE GOVERNING SPECIFICATIONS.

INDEX

SHEET NO.	DESCRIPTION
L-1	TITLE SHEET & INDEX MAP
L-2	TRAIL LOCATOR MAP
L-3	TYPICAL TRAIL CROSS SECTION
L-4	TYPICAL TRAIL CROSS SECTIONS
L-5	TRAIL ALIGNMENT DETAILS
L-6	EROSION CONTROL DETAILS
L-7-L-8	HNC TO THE POND TRAIL PLANS
L-9	GAZEBO POINT TRAIL PLANS

THIS PLAN CONTAINS 10 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.

Luke W. Sydow

LANDSCAPE ARCHITECT (TYPED OR PRINTED NAME)



LANDSCAPE ARCHITECT

April 7th, 2016

DATE

#25866

REG. NO.

CITY APPROVAL

APPROVED

PARKS MANAGER

DATE

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.

DRAWN BY: LWS

SHEET NO. 1 OF 9



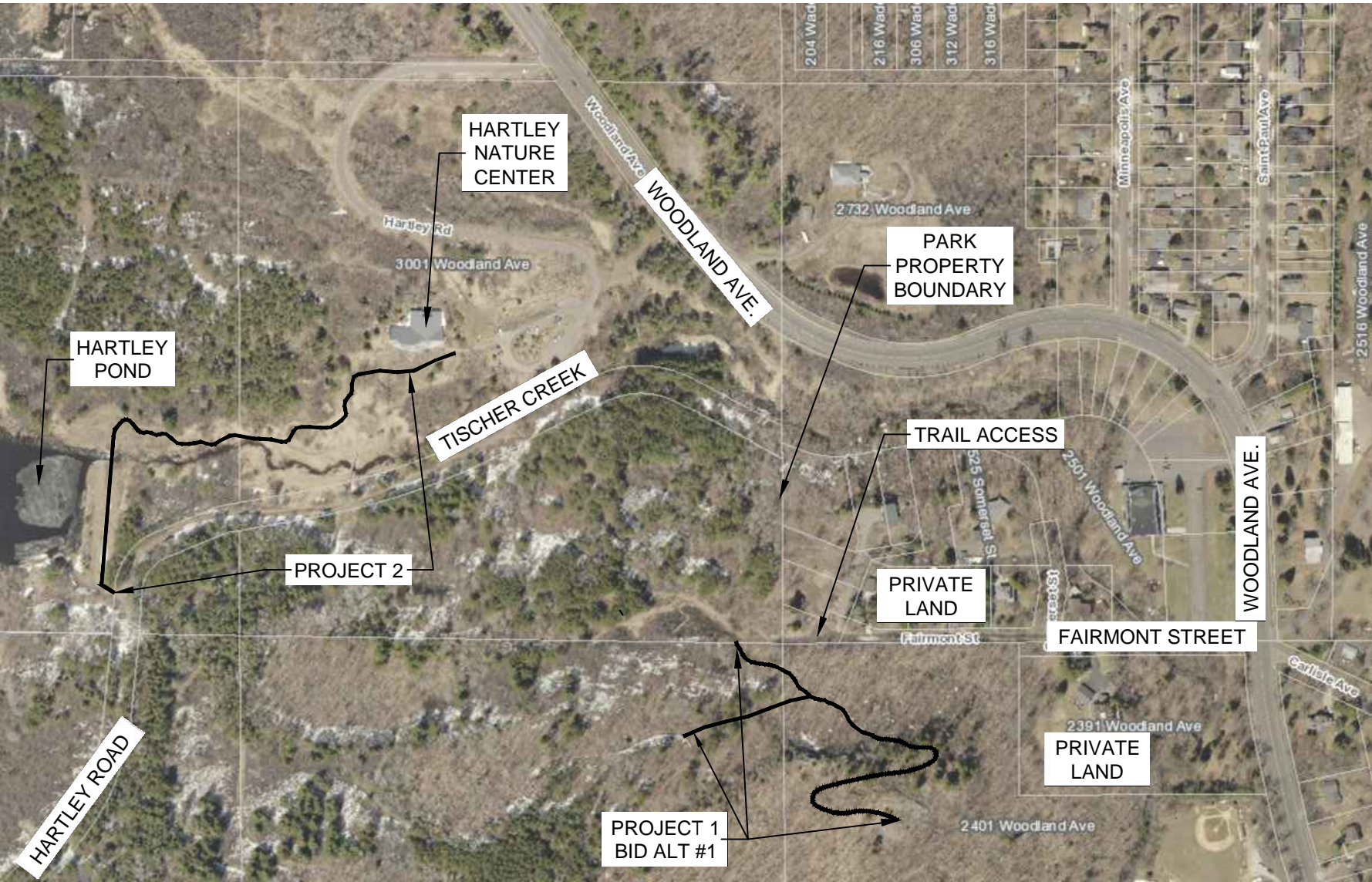
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ISSUE	RECORD/REVISION
PURPOSE	DATE

HARTLEY PARK TRAIL IMPROVEMENTS

SHEET KEY

SHEET TITLE	TITLE SHEET INDEX MAP
DATE:	4/7/16
DRAWN BY:	LWS
CHECKED BY:	LWS
PROJECT NUMBER	15320
SHEET NUMBER	L-1



TRAIL CONSTRUCTION NOTES:

1. 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 L-3 & L-4, TRAIL ALIGNMENT PLANS L-5 AND OTHER REQUIREMENTS AND DETAILS ON SHEETS L-7 THROUGH L-10.

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 2015.

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.

LOCATOR MAP

NOT TO SCALE





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PURPOSE	DATE

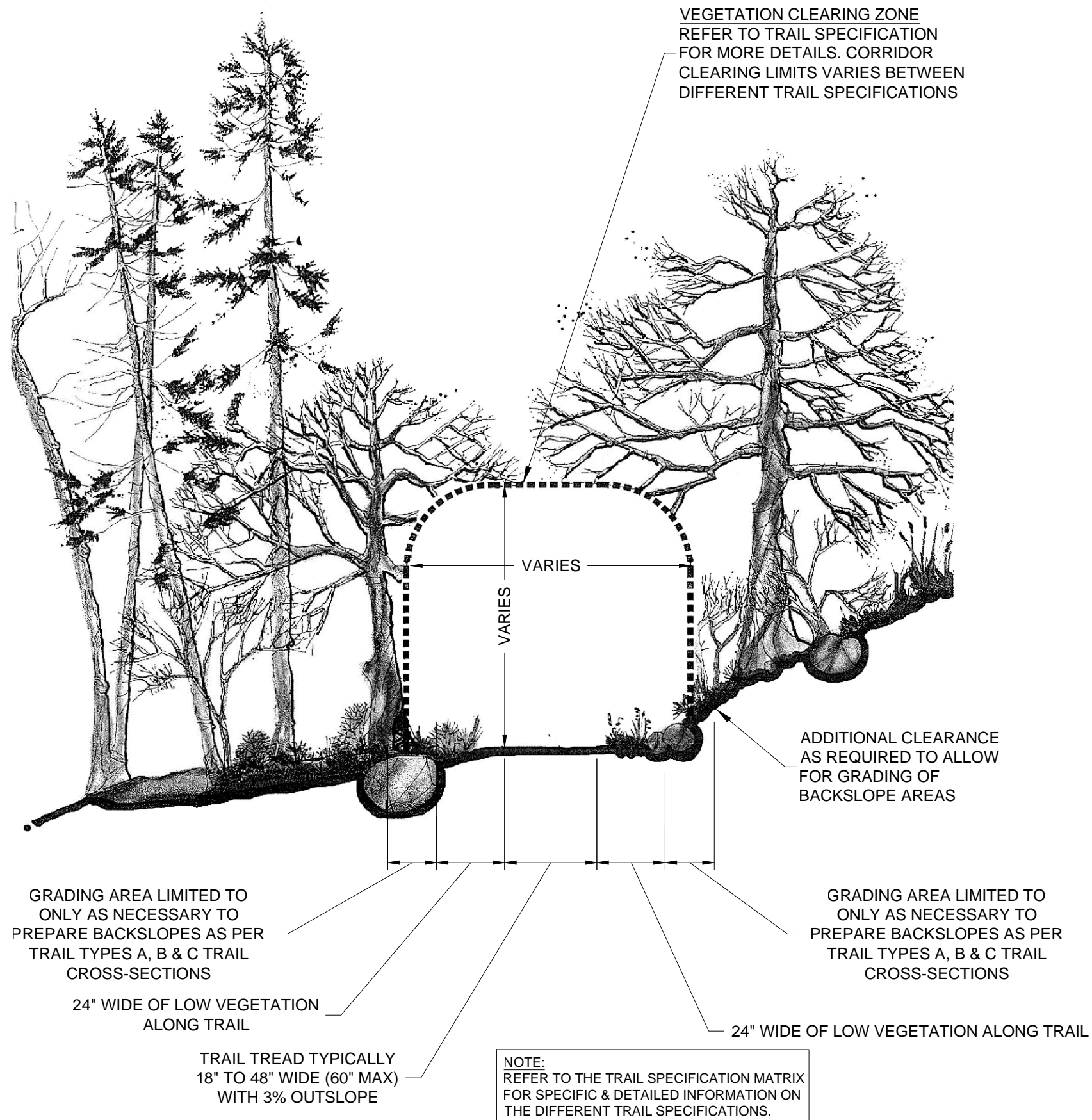
HARTLEY PARK

TRAIL IMPROVEMENTS

CITY OF DULUTH, MINNESOTA

SHEET KEY

SHEET TITLE	
PROJECT LOCATOR MAP	
DATE:	4/7/16
DRAWN BY:	LWS
CHECKED BY:	LWS
PROJECT NUMBER	15205
SHEET NUMBER	L-2



TYPICAL TRAIL DESIGN CROSS-SECTION

NOT TO SCALE

1
L-3

TYPICAL TRAIL DESIGN NOTES:

1. THE GRAPHIC ON THIS SHEET ILLUSTRATES A TYPICAL TRAIL CROSS-SECTION HIGHLIGHTING TREAD AND VEGETATION CLEARANCE ZONE WIDTHS.
2. THE TRAIL WIDTH AND VEGETATION CLEARANCE ZONE WIDTHS MAY BE MODIFIED BY THE OWNER IN RESPONSE TO PARTICULAR SITE CONDITIONS.
3. SEE SPECIFICATIONS FOR FURTHER DETAILS ON TREAD AND CORRIDOR CLEARING AND TYPICAL TRAIL DESIGN CROSS-SECTIONS
4. SEE SHEET L-6 AND 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 ALL TRAIL CONSTRUCTION TYPES. (SEE SPECIFICATIONS FOR FURTHER DETAILS)
4. GRADING THROUGH LOW SPOTS, FLATTER AREAS, EARTHEN PILES, MISCELLANEOUS DEBRIS, AND FALLEN WOODY MATERIALS IS INCLUDED IN THE CONTRACTOR'S UNIT BID PRICE FOR TRAIL CONSTRUCTION. (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)



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PURPOSE	DATE

HARTLEY PARK
TRAIL IMPROVEMENTS
CITY OF DULUTH, MINNESOTA

SHEET KEY

SHEET TITLE

TYPICAL TRAIL
SECTION

DATE 4/7/16

DRAWN BY: LWS

CHECKED BY: LWS

PROJECT NUMBER 15205

SHEET NUMBER

L-3

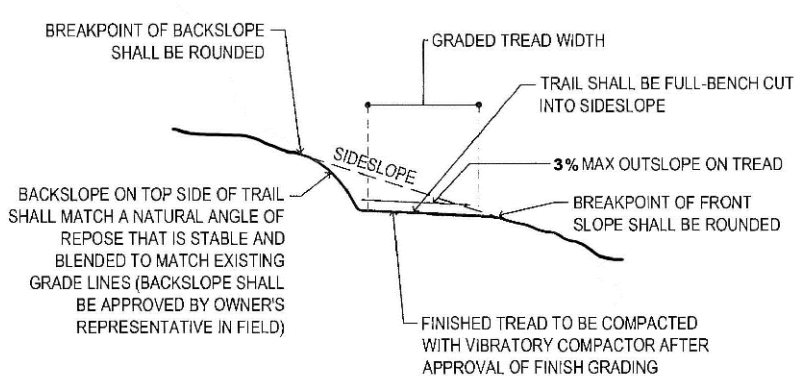
FIELD MEASUREMENT NOTES:

- 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.

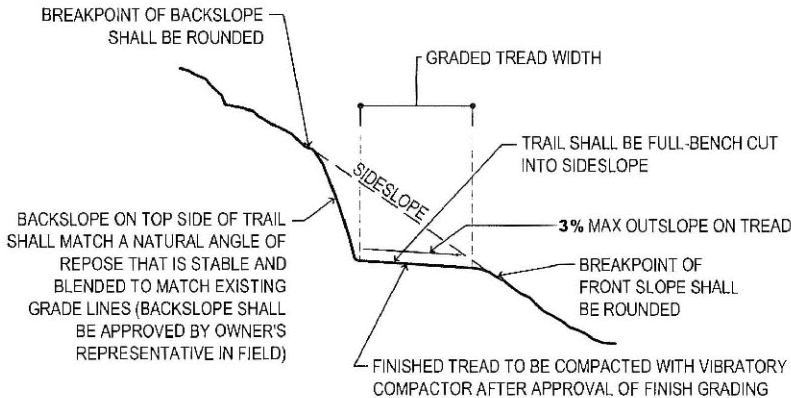
CONSTRUCTION NOTE:

- 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 THOUGH LANDSCAPES WITH LOW SLOPE ANGLES AND FLATTER AREAS SUCH AS TYPE "A" TRAIL.
- UNLESS SHOWN ON SPECIFIC DETAILS THE OUTRUN SHALL BE CONSTRUCTED AS BELOW.

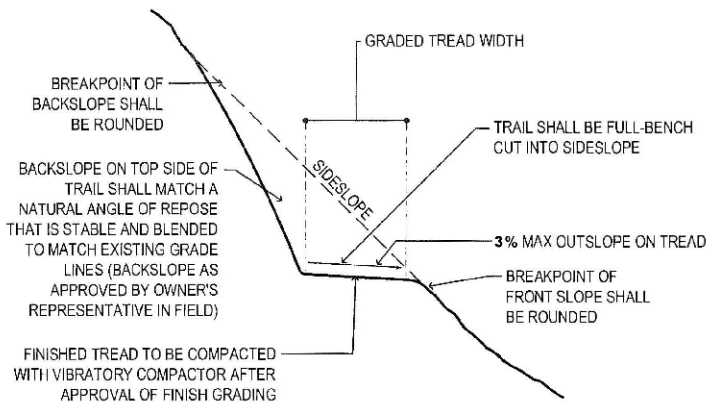
NOTE:
CONTRACTOR CANNOT INVOICE FOR BOTH TRAIL CONSTRUCTION, TYPES A, B & C, AND CONSTRUCTED FEATURES OF A GIVEN LINEAR FOOT OF TRAIL.



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
L-4



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ISSUE RECORD/REVISION

PURPOSE	DATE

HARTLEY PARK
TRAIL IMPROVEMENTS
CITY OF DULUTH, MINNESOTA

SHEET KEY

SHEET TITLE

TRAIL SECTIONS

DATE 4/7/16

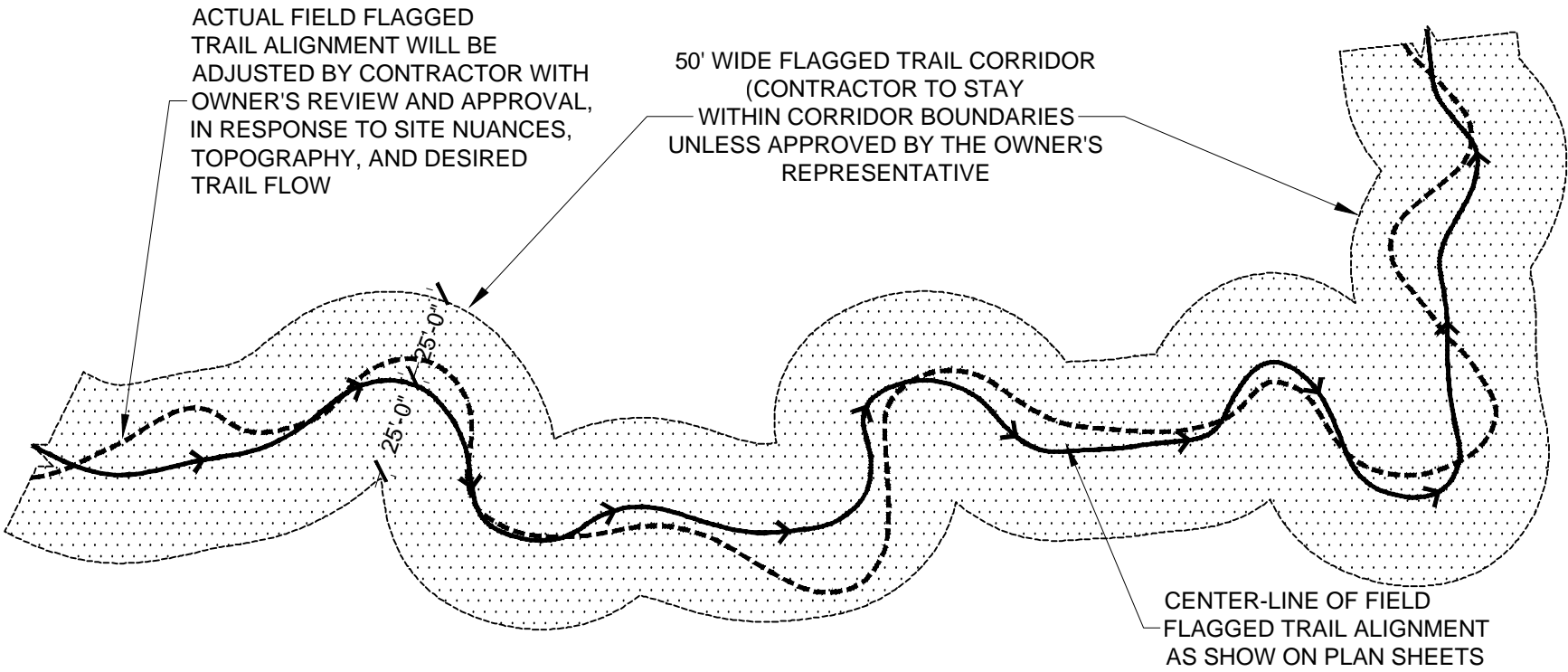
DRAWN BY: LWS

CHECKED BY: LWS

PROJECT NUMBER 15205

SHEET NUMBER

L-4



TRAIL LAYOUT AND FIELD LAYOUT REQUIREMENTS

NOT TO SCALE

1
L-5

NOTES:
PLAN SHEETS L-7 THROUGH L-9 ILLUSTRATE THE APPROXIMATE 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.

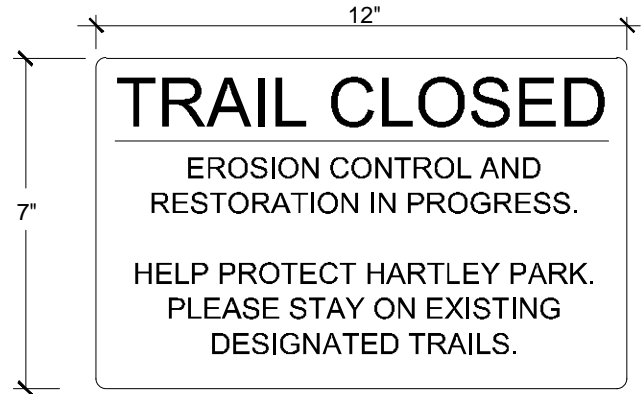
Flagging:

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

Corridor is marked with blue hanging flags.

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.

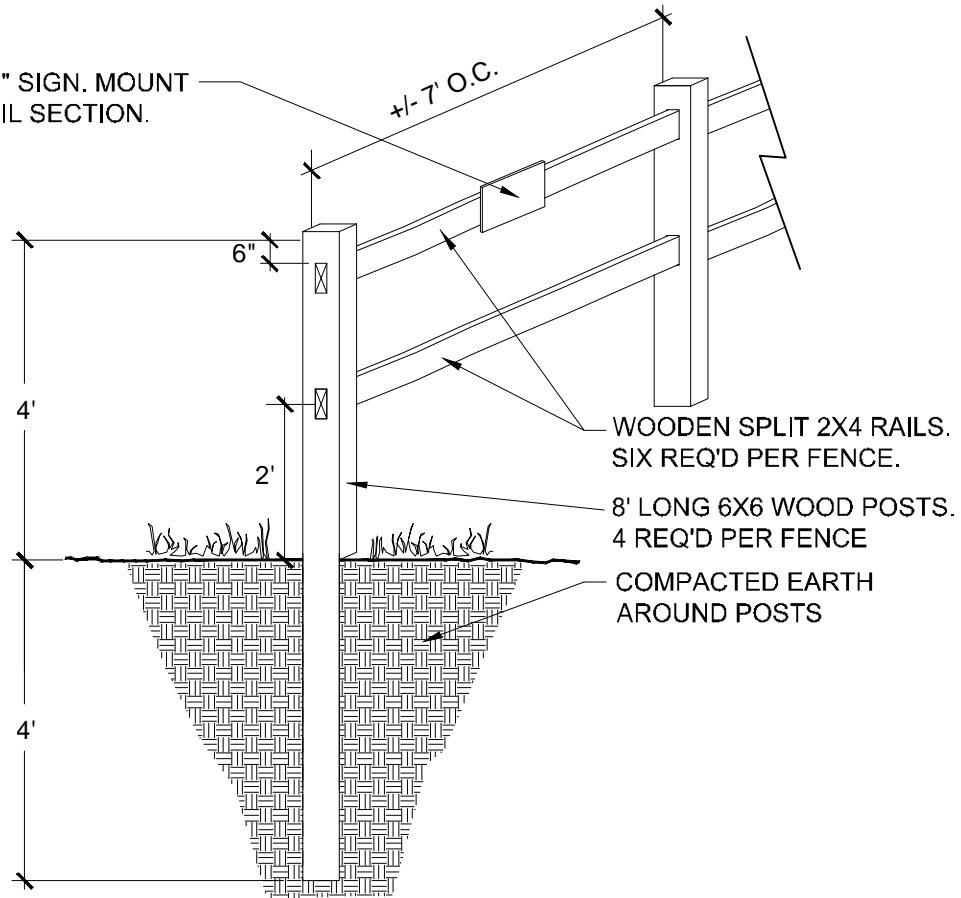


SIGNS TO BE FURNISHED BY CITY OF DULUTH, INSTALLED BY CONTRACTOR.

TRAIL CLOSED SIGN

NOT TO SCALE

"TRAIL CLOSED" SIGN. MOUNT ON CENTER RAIL SECTION.



SPLIT RAIL FENCE INSTALLATION

NOT TO SCALE

3
L-5

N/A

NOT TO SCALE

2
L-5

CITY OF DULUTH PROJECT NO. xxxx

DRAWN BY: LWS

SHEET NO. 5 OF 9



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ISSUE RECORD/REVISION

PURPOSE	DATE

HARTLEY PARK TRAIL IMPROVEMENTS CITY OF DULUTH, MINNESOTA

SHEET KEY

SHEET TITLE

TRAIL ALIGNMENT

DATE

4/7/16

DRAWN BY:

LWS

CHECKED BY:

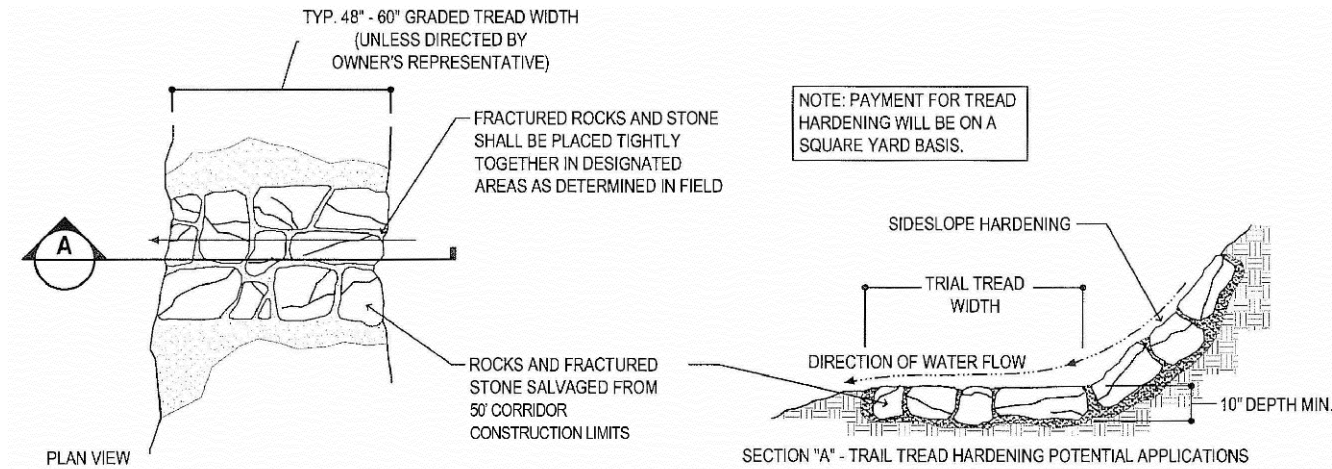
LWS

PROJECT NUMBER

15205

SHEET NUMBER

L-5



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.

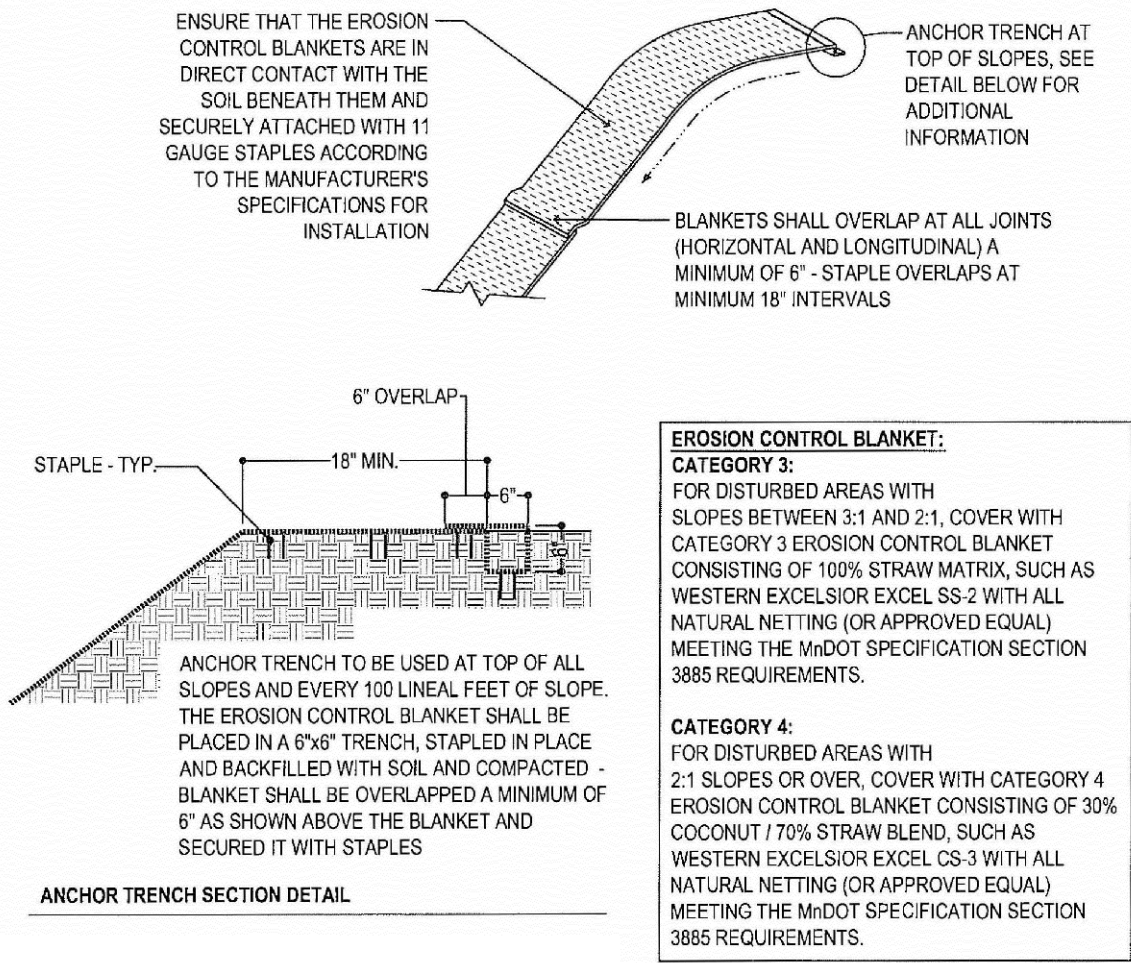
10" MINIMUM ROCK/STONE SET DEPTH.

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

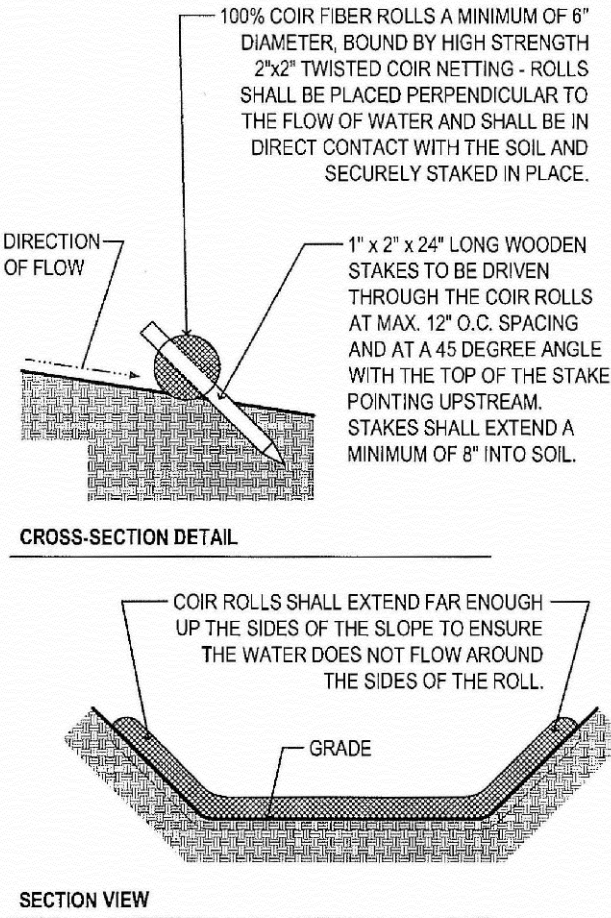
1
L-6



WOOD FIBER BLANKET DETAIL

NOT TO SCALE

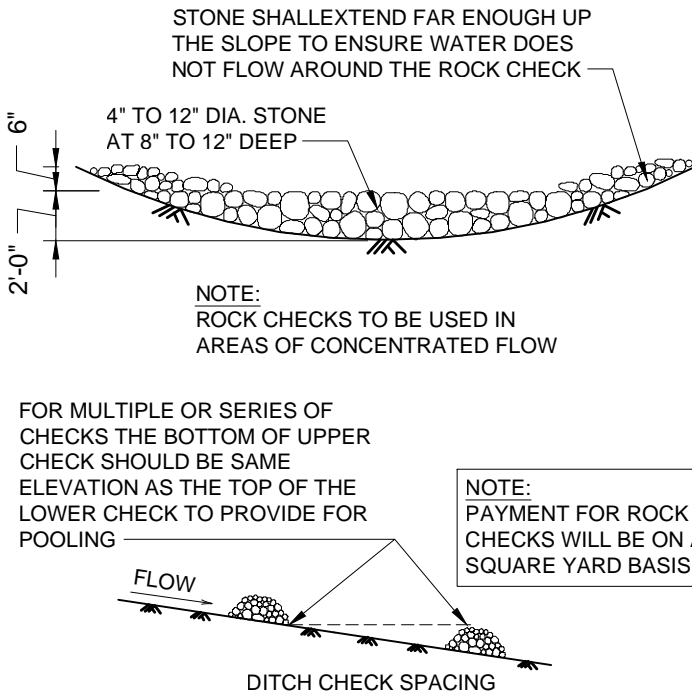
2
L-6



COIR ROLL DETAIL

NOT TO SCALE

3
L-3



ROCK CHECK DETAIL

NOT TO SCALE

4
L-6

EROSION CONTROL NOTES:

- ALL DISTURBED AREAS NOT PART OF ACTIVE TREAD TO BE STABILIZED WITHIN 7 DAYS OF NOT BEING WORKED.
- 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.
- SEED SHALL BE A NATIVE WOODLAND AND NATIVE MEADOW MIX.
- 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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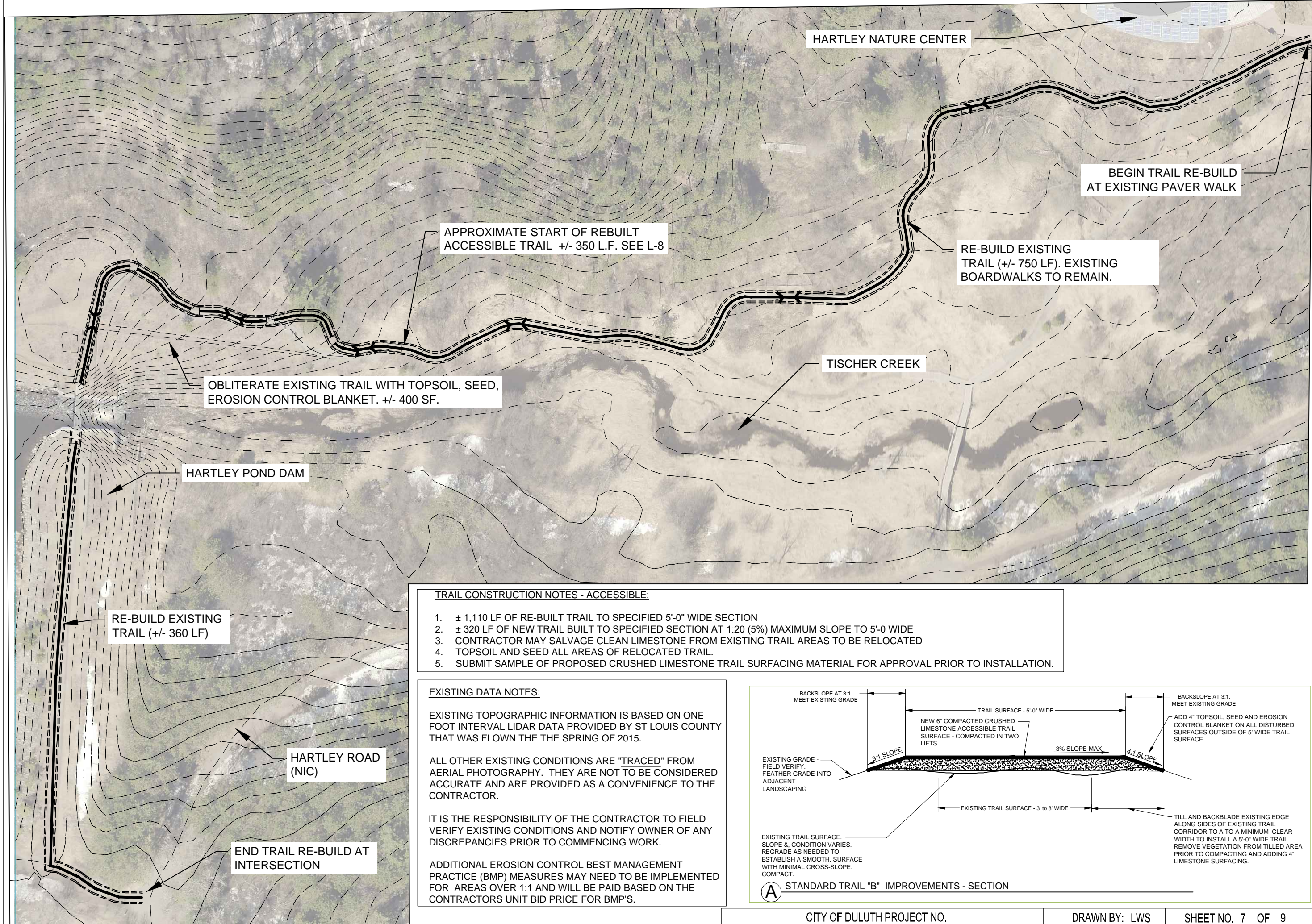
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ISSUE RECORD/REVISION	
PURPOSE	DATE

HARTLEY PARK
TRAIL IMPROVEMENTS
CITY OF DULUTH, MINNESOTA

SHEET KEY	
SHEET TITLE	
SWPP PLANS	
DATE	4/7/16
DRAWN BY:	LWS
CHECKED BY:	LWS
PROJECT NUMBER	03110
SHEET NUMBER	L-6

As of 6/20/16 - 2:18 PM
P:\1254 - L-7 - Hartley Park Improvements - L-7.dwg
P:\1254 - L-7 - Hartley Park Improvements - L-7.dwg



TRAIL CONSTRUCTION NOTES - ACCESSIBLE:

1. ± 1,110 LF OF RE-BUILT TRAIL TO SPECIFIED 5'-0" WIDE SECTION
2. ± 320 LF OF NEW TRAIL BUILT TO SPECIFIED SECTION AT 1:20 (5%) MAXIMUM SLOPE TO 5'-0 WIDE
3. CONTRACTOR MAY SALVAGE CLEAN LIMESTONE FROM EXISTING TRAIL AREAS TO BE RELOCATED
4. TOPSOIL AND SEED ALL AREAS OF RELOCATED TRAIL.
5. SUBMIT SAMPLE OF PROPOSED CRUSHED LIMESTONE TRAIL SURFACING MATERIAL FOR APPROVAL PRIOR TO INSTALLATION.

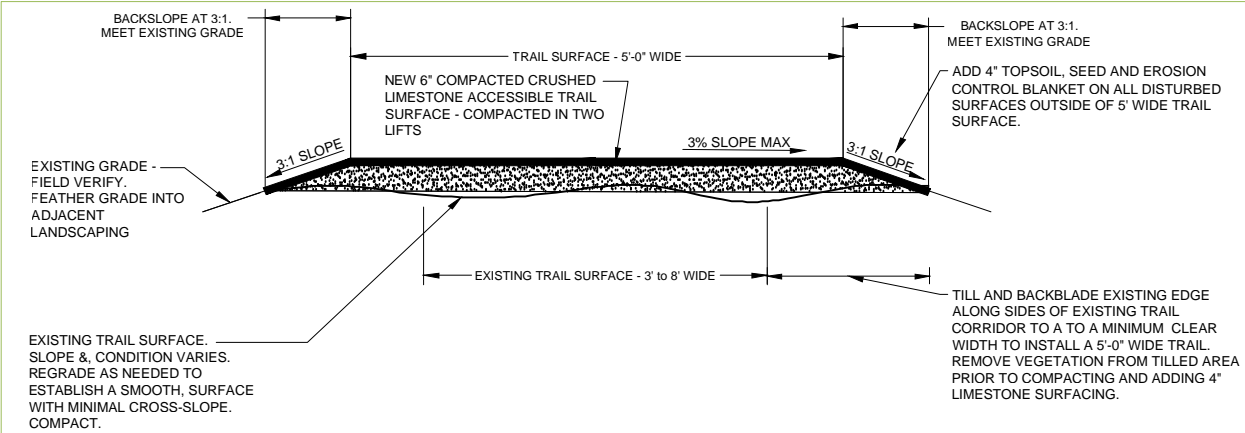
EXISTING DATA NOTES:

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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.

ADDITIONAL EROSION CONTROL BEST MANAGEMENT PRACTICE (BMP) MEASURES MAY NEED TO BE IMPLEMENTED FOR AREAS OVER 1:1 AND WILL BE PAID BASED ON THE CONTRACTORS UNIT BID PRICE FOR BMP'S.



STANDARD TRAIL "B" IMPROVEMENTS - SECTION

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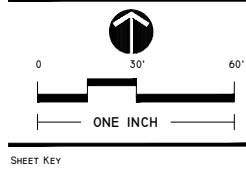
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ISSUE RECORD/REVISION	
PURPOSE	DATE

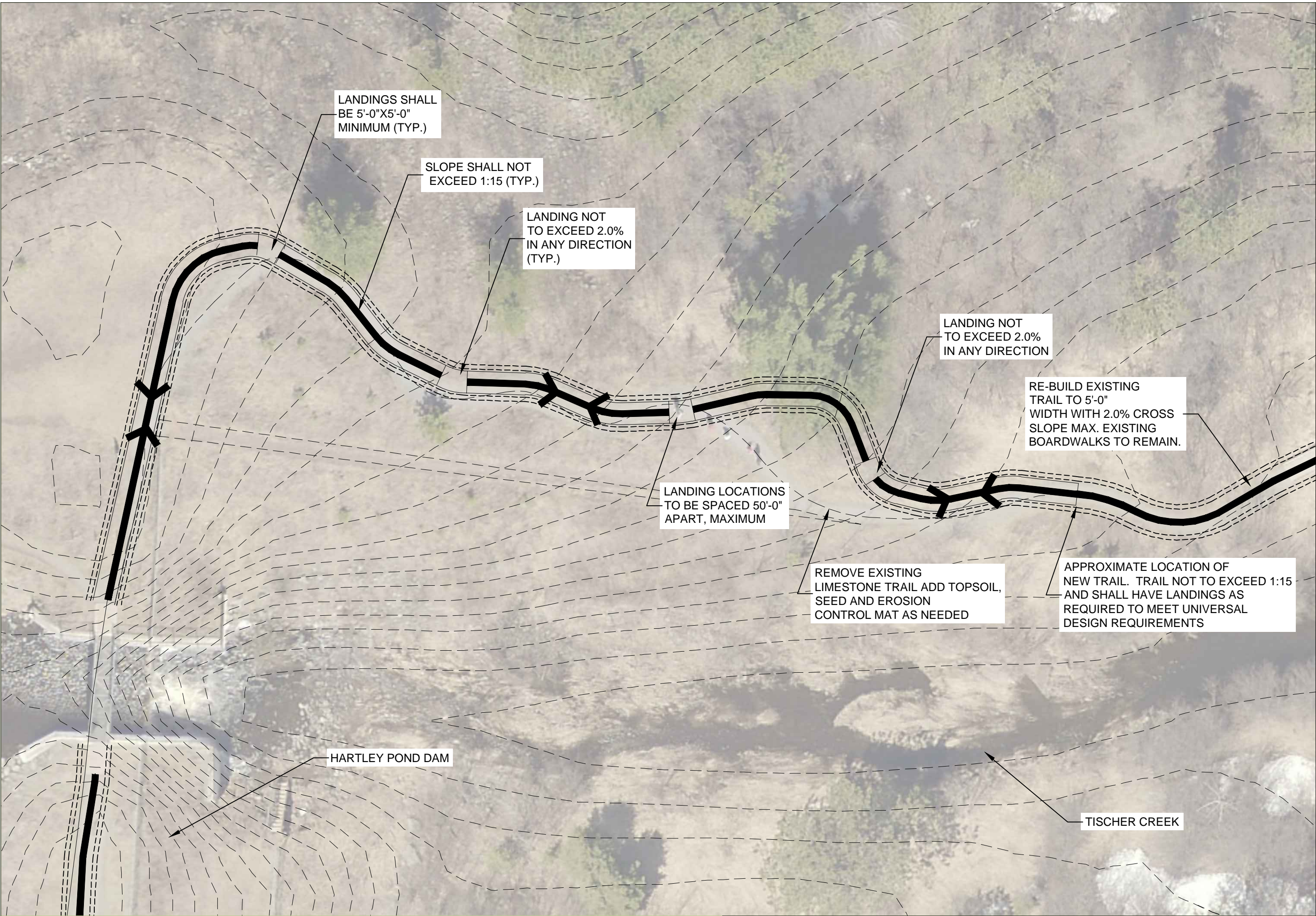
HARTLEY PARK

TRAIL IMPROVEMENTS

CITY OF DULUTH, MINNESOTA



SHEET TITLE	
TRAIL IMPROVEMENTS HARTLEY NATURE CENTER TO POND	
DATE:	4/7/16
DRAWN BY:	LWS
CHECKED BY:	LWS
PROJECT NUMBER	15205
SHEET NUMBER	L-7



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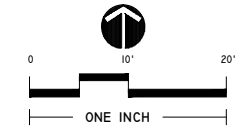
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ISSUE RECORD/REVISION	
PURPOSE	DATE

HARTLEY PARK

TRAIL IMPROVEMENTS

CITY OF DULUTH, MINNESOTA



SHEET KEY

SHEET TITLE
TRAIL REVISIONS HARTLEY NATURE CENTER TO POND

DATE: 4/7/16
DRAWN BY: LWS
CHECKED BY: LWS

PROJECT NUMBER
15205

SHEET NUMBER
L-8

CITY OF DULUTH PROJECT NO.

DRAWN BY: LWS

SHEET NO. 8 OF 9



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PURPOSE

SHEET KEY

102

SHEET NO. 9 OF 9