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 5 & 6. TRAIL ALIGNMENT PLANS 12 THROUGH 50, AND OTHER REQUIREMENTS AND DETAILS ON SHEETS 7 THROUGH 11.

LEGEND

- EXISTING ROAD
- EXISTING TRAIL (HORSE TRAIL)
- EXISTING SNOWMOBILE/ HORSE TRAIL
- EXISTING TRAIL WASHED OUT IN THIS SEGMENT
- FUTURE TRAILS
- FUTURE TRAIL (TYP)
- PROPOSED TRAILS (SEGMENTS 5, 10, 11, 12, 13, 20)
- FUTURE TRAIL (NOT IN CONTRACT)
- EXISTING MOUNTAIN BIKE TRAIL (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 SPRING OF 2011.

ALL OTHER EXISTING CONDITIONS ARE "AS BUILT" FROM AERIAL PHOTOGRAPHY. THEY ARE NOT TO BE CONSIDERED ACCURATE AND ARE PROVIDED AS A CONFIDENCE 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.
VEGETATION CLEARING ZONE
REFER TO TRAIL SPECIFICATION FOR MORE DETAILS. CORRIDOR CLEARING LIMITS VARY BETWEEN DIFFERENT TRAIL SPECIFICATIONS.

TYPICAL TRAIL DESIGN CROSS-SECTION
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 FE EROSION CONTROL 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 CONTRACTOR'S 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 SPECIFICATION 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 SPECIFICATION FOR FURTHER DETAILS)
5. ALL TURNS NOT DEFINED AS A 90° OR 180° TURN ARE TO BE INLOPED TURNS AS SPECIFIED. INLOPED TURNS ARE INCLUDED IN THE CONTRACTOR'S UNIT BID PRICE FOR TRAIL CONSTRUCTION TYPES "A, B & C." (SEE SPECIFICATION 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 SPECIFICATION FOR FURTHER DETAILS)
CONSTRUCTION NOTE:

1. PARTIAL BENCH CUT IS ALLOWED WHEN DONE PROPERLY WITH A DOWNHILL RETAINING WALL AND COMPACTED BACKFILL. REFER TO PAGE 158 OF TRAIL SOLUTIONS: IMBA'S GUIDE TO BUILDING BETTER SINGLETRACK.

2. 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)

3. 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 JUMPS WHEN BUILDING THROUGH LANDSCAPES WITH LOW SLOPE ANGLES AND FLATTER AREAS SUCH AS TYPE "A" TRAIL.

FIELD MEASUREMENT NOTES:

1. 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 SPEC).

2. TRAIL TYPES AND QUANTITIES ARE PROVIDED AS A CONVENIENCE TO THE CONTRACTOR. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE FIELD QUANTITIES AND NOTIFY THE OWNER OF ANY DISCREPANCIES PRIOR TO COMMENCING WORK.

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

TRAIL CROSS-SECTIONS (A-C TRAIL TYPES)

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

TYPE "B" (MEDIUM SLOPE TRAIL) 15%-50% SLOPE

TYPE "C" (HIGH SLOPE TRAIL) 51%- SLOPE

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 is 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 flag. Archeologically sensitive areas have been identified in the plans and must be avoided by 100 UF 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.
SWPPP NOTES:

1. 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.

2. 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 CLEARLY SEEN AS A RESULT OF THE CORRODING CLEARING ARE AN ACCEPTABLE ALTERNATIVE TO NATIVE DUFF MULCH.

3. FOR SLOPE ANGLES UNDER 3° USE TEMPORARY EROSION CONTROL SEED MIX AND FOR DISTURBED AREAS THAT ARE LACKING ADEQUATE NATIVE DUFF MATERIAL.

4. FOR SLOPE ANGLES 3° 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.

5. SEE SWPPP FOR SEED MIX DETAILS.

6. 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.

7. CUT BRUSH AND SLASH MUST BE DISPOSED IN AN UPLAND LOCATION AND MUST BE KEPT OUT OF STREAMS, GULLIES, SAVANNAH, WETLANDS, AND LOW AREAS. SEE SPECIFICATIONS FOR DETAILS.

8. 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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SWPPP DETAILS

CONSTRUCTION NOTE:

BACKFILL BEDDING MATERIAL SHALL BE 3" to 6" CRUSHED ROCK. THE SAME CRUSHED ROCK CAN BE USED FOR FILL BETWEEN THE SET ROCKSTONE.

10" MINIMUM ROCKSTONE SET DEPTH.

SEAMS RUNNING IN THE DIRECTION OF TRAVEL MUST BE MINIMUM IN BOTH LENGTH AND WIDTH. SEAM WIDTH SHALL BE 6" TO 8" ENDED AND SEAM STAGGERING SHALL BE USED WHERE POSSIBLE.

WOOD FIBER BLANKET DETAIL

ANCHOR TRENCH TO BE USED AT TOP OF ALL SLOPES AND EVERY 150 LINEAL FEET OF SLOPE. THE EROSION CONTROL BLANKET SHALL BE PLACED IN A 4" TRENCH, STAPLED IN PLACE AND BACKFILLED WITH SOIL AND COMPACTED. BLANKET SHALL BE OVERLAPPED A MINIMUM OF 6" AS SHOWN ABOVE THE BLANKET AND SECURED WITH STAPLES.

ANCHOR TRENCH SECTION DETAIL

EROSION CONTROL BLANKET:

CATEGORIZE 3: FOR DISTURBED AREAS WITH SLOPES BETWEEN 3° AND 15°, COVER WITH CATEGORY 3 EROSION CONTROL BLANKET CONSISTING OF 100% STRAIN NATURAL, SUCH AS WESTERN EXCELSIOR EXCEL 50-60 WITH ALL NATURAL NETTING (APPROVED EQUAL) MEETING THE MINIMUM SPECIFICATION SECTION 3885 REQUIREMENTS.

CATEGORIZE 4: FOR DISTURBED AREAS WITH 15° TO 30° SLOPES, COVER WITH CATEGORY 4 EROSION CONTROL BLANKET CONSISTING OF 35% COCONUT 70% STRAW BLIND, SUCH AS WESTERN EXCELSIOR EXCEL 10-12 WITH ALL NATURAL NETTING (APPROVED EQUAL) MEETING THE MINIMUM SPECIFICATION SECTION 3885 REQUIREMENTS.

ANCHOR TRENCH SECTION DETAIL

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SECTION VIEW

COIR ROLL DETAIL

NOT TO SCALE

FOR MULTIPLE OR SERIES OF CHECKS THE BOTTOM OF UPPER CHECK SHOULD BE SIMILAR ELEVATION AS THE TOP OF THE LOWER CHECK TO PROVIDE FOR POOLING.

NOTE: PAYMENT FOR ROCK CHECKS WILL BE ON A SQUARE YARD BASIS.

DITCH CHECK SPACING

FLOW

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NOTE: PAYMENT FOR ROCK CHECKS WILL BE ON A SQUARE YARD BASIS.
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 INCLINED IN EXCESS OF THE STANDARD TREAD CROSS SLOPE OF 3:1. 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 RADIUS WILL BE BASED ON TRAIL TYPE SPECIFICATIONS FOUND IN THE TRAIL'S 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.

18" TO 36" GAP AS DIRECTED BY OWNER'S REPRESENTATIVE

FELLED TREES USED AS TRAIL FEATURE

ROCKS USED AS TRAIL FEATURES

ROCKS AND FELLED TREES DETAIL

18" MIN.

BACKSLOPE SLOPED 3:1 OR LESS TO DRAIN AWAY FROM BERM

SECTION VIEW

TYPICAL TURN & BERM DETAIL

NOT TO SCALE
1. FINAL BOARDWALK FIELD DESIGN IS THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE BASED 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 SPECIFICATIONS INDICATED IN THE SPECIFICATIONS.

4. ACCEPTABLE MATERIALS FOR THE DECK RISING SURFACE MUST BE ROUGH CUTOFF LUMBER AND INCLUDES CEDAR, TAMARACK, AND TREATED PINE. ALL OTHER LUMBER USED IN THE CONSTRUCTION CAN BE EITHER ROUGH CUTOFF 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 WIDTH OF ALL BOARDWALKS, ROCK HARDENED TREAD, BRIDGES AND BERRMS 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 OFF STREAMS,グルIES, GULLIES, SCALES, VET AREAS, AND LOW AREAS. SEE SPECIFICATIONS FOR DETAILS.

11. NO EXCAVATION OR FILL PERMITTED IN VET AREAS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONSULT WITH THE OWNER PRIOR TO DOING ANY WORK WITHIN SUSPECTED VET AREAS.

12. 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 THE UNIT BID PRICE OF ROCK ARMORING.

13. 12" DIA. PRE-DRILLED HOLE AND #4 REBAR W/ WASHER WELDED TO TOP AND DRIVEN TO A DEPTH OF 36".

14. TYPICAL PLAN DETAIL FOR BRIDGE (CREEK CROSSINGS)

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

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

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

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

19. 48" WIDE BOARDWALK

NOT TO SCALE

TYPICAL ELEVATION DETAIL FOR BRIDGE (CREEK CROSSINGS)

NOT TO SCALE
SUPERIOR HIKING TRAIL

MATCHLINE SHEET 14

60 LF BOARDWALK

50' MIN.

50' MIN. SEPARATION REQUIRED BETWEEN HIKING TRAIL AND MOUNTAIN BIKE TRAIL

GRAVE YARD TRAIL SEGMENT 10

MATCHLINE SHEET 16

MATCHLINE

CITY OF DULUTH PROJECT NO. 1323

DRAWN BY: TTP

SHEET NO. 15 OF 50
LANDSLIDE AREA: EXTENT OF EROSION CONTROL, FABRIC, AND SEED TO BE DETERMINED BY THE END OF THE TIME OF CONSTRUCTION, CONSULT WITH OWNER PRIOR TO TRAIL CONSTRUCTION.

TYPE 'C' TRAIL CONSTRUCTION

131ST AVENUE TRAIL SEGMENT 20

21 FT OF BRIDGE

POSSIBLE BERM LOCATION

POSSIBLE BERM LOCATION

POSSIBLE BERM LOCATION

POSSIBLE BERM LOCATION

POSSIBLE BERM LOCATION

131ST AVE. TRAIL

CITY OF DULUTH PROJECT NO. 1323 DRAWN BY: TTP SHEET NO. 38 OF 50