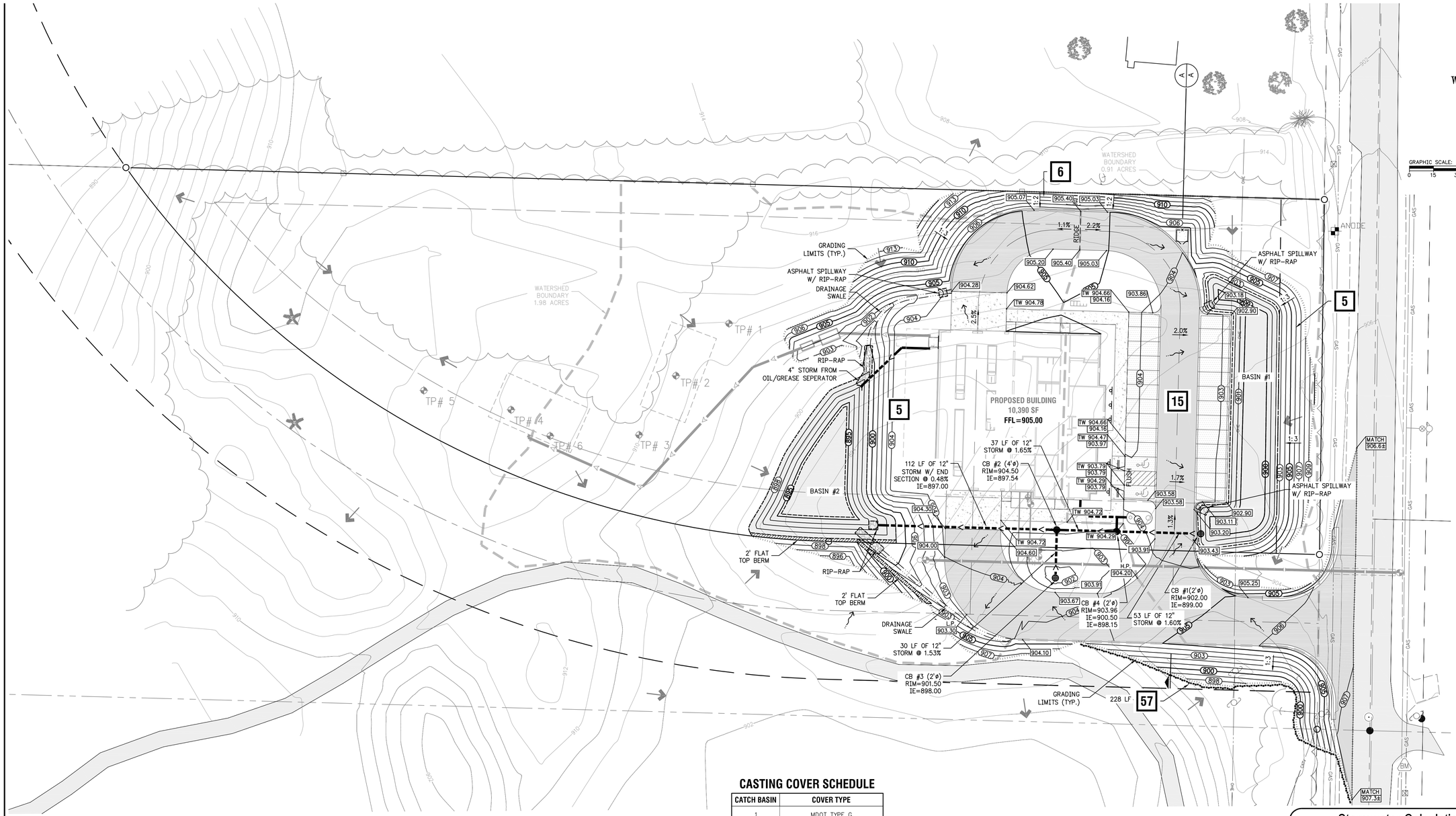


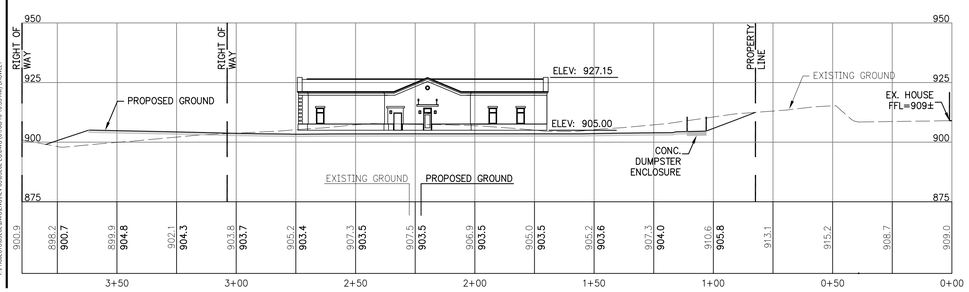
CASTING COVER SCHEDULE

CATCH BASIN	COVER TYPE
1	MDOT TYPE G
2	SOLID
3	MDOT TYPE G
4	SOLID

* SEE SHEET 4.2 FOR DRAINAGE DETAILS

CROSS SECTION A-A

SCALE:
HORIZONTAL: 1"=30'
VERTICAL: 1"=30'



Michigan Unified Keying System

5	SEEDING	INEXPENSIVE AND VERY EFFECTIVE, STABILIZES SOIL, THUS MINIMIZING EROSION PERMITS RUNOFF TO INFILTRATE SOIL, REDUCING RUNOFF VOLUME SHOULD INCLUDE PERPARED TOPSOIL BED
6	SEEDING w/MULCH OR MATTING	FACILITATES ESTABLISHMENT OF VEGETATIVE COVER, EFFECTIVE FOR DRAINAGEWAYS w/ LOW VELOCITY, EASILY PLACED IN SMALL QUANTITES BY INEXPERIENCED PERSONNEL SHOULD INCLUDE PERPARED TOPSOIL BED
15	PAVING	PROTECTS AREA WHICH OTHERWISE CANNOT BE PROTECTED, BUT INCREASES RUNOFF VOLUME AND VELOCITY IRREGULAR SURFACE WILL HELP SLOW VELOCITY
35	STORM SEWER	SYSTEM REMOVES COLLECTED RUNOFF FROM SITE, PARTICULARLY FROM PAVED AREAS CAN ACCEPT LARGE CONCENTRATIONS OF RUNOFF CONDUCTS RUNOFF TO MUNICIPAL SEWER SYSTEM OR STABILIZED OUTFALL LOCATION USE CATCH BASINS TO COLLECT SEDIMENT
57	GEOTEXTILE SILT FENCE	USES GEOTEXTILE AND POSTS OR BALES MAY BE CONSTRUCTED OR PREPACKAGED EASY TO CONSTRUCT AND LOCATE AS NECESSARY

Legend

- EXISTING CONTOURS (665)
- PROPOSED CONTOURS (665)
- WATERSHED BOUNDARY
- DIRECTION OF FLOW
- PROPOSED DRAINAGE FLOW
- PROPOSED CATCH BASIN
- PROPOSED MANHOLE
- PROPOSED GRADE (2.0%)

General Notes

1. ALL GRADES ARE PAVEMENT GRADES UNLESS OTHERWISE DESIGNATED.
2. COORDINATE DOWNSPOUT COLLECTION SYSTEM WITH ARCHITECTURAL PLANS AND CONNECT TO ON SITE STORM SEWER.
3. ANNUAL INSPECTIONS OF BASIN #1 AND BASIN #2 SHALL BE COMPLETED TO VERIFY BASINS ARE FUNCTIONING PROPERLY.
4. ONCE SEDIMENT IN BASINS ACCUMULATES TO 6" IN DEPTH, OWNER SHALL BE RESPONSIBLE TO REMOVE IT.

Stormwater Calculations

BASIS OF DESIGN:

DESIGN FOR 100 YR STORM EVENT
REQ = (Cf)(I)(A)(86,400 Sec/Day)
WHERE:
C impervious = 0.98
C pervious = 0.20
Cf = WEIGHTED AVERAGE

DRAINAGE AREA #1

I=5.08 IN/24 HR = 0.2117 IN/HR
PROPOSED IMPERVIOUS SURFACE = 0.28 Ac.
GREEN AREA = 0.63 Ac.
TOTAL = 0.91 Ac.

WEIGHTED "C"
(0.28 Ac.) (0.98) = 0.2744
(0.63 Ac.) (0.20) = 0.1260
Cf = (0.4004 / 0.91 AC.) = 0.44

RUNOFF VOLUME
(0.44) (0.2117) (0.91 Ac.) (86,400 SEC/DAY)
VOLUME REQUIRED = 7,325 CF

BASIN #1

TOP = 902.50
HWL = 902.00
BOTTOM = 900.00
VOLUME PROVIDED = 6,988 CF

MAX. 72 HR. DRAIN TIME CALC
72 > 12 IN/FT • (2 FT / 1 IN/HR) = 72 > 24 HRS

DRAINAGE AREA #2 (INCLUDES EXPANSION)

I=5.08 IN/24 HR = 0.2117 IN/HR
PROPOSED IMPERVIOUS SURFACE = 0.52 Ac.
GREEN AREA = 1.46 Ac.
TOTAL = 1.98 Ac.

WEIGHTED "C"
(0.52 Ac.) (0.98) = 0.5096
(1.46 Ac.) (0.20) = 0.2920
Cf = (0.8016 / 1.98 AC.) = 0.40

RUNOFF VOLUME
(0.40) (0.2117) (1.98 Ac.) (86,400 SEC/DAY)
VOLUME REQUIRED = 14,500 CF

BASIN #2

TOP = 899.00
HWL = 899.00
BOTTOM = 894.50
VOLUME PROVIDED = 15,473 CF

MAX. 72 HR. DRAIN TIME CALC
72 > 12 IN/FT • (4.5 FT / 1 IN/HR = 72 > 54 HRS

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REV#	DATE	DRN	DESC
A	06/17/09	TGR	TOWNSHIP AND AGENCY SUBMITTAL
B	07/09/09	TGR	REVISED PER GARFIELD TOWNSHIP PLANNING COMMISSION COMMENTS
C	09/11/09	BDR	REVISED PER OWNERS REVIEW
D	09/18/09	BDR	ISSUED FOR FINAL REVIEW
E	10/27/09	BDR	ISSUED FOR EIBES

GRAND TRAVERSE METRO EMERGENCY SERVICES AUTHORITY
STATION 12
GRADING, DRAINAGE, AND SOIL EROSION CONTROL PLAN
SECTION 19, TOWN 27 NORTH, RANGE 11 WEST
GARFIELD TOWNSHIP, GRAND TRAVERSE COUNTY, MICHIGAN

These documents are prepared in accordance with the contractual terms and conditions for this project.

P.M.: BRIAN D. ROWLEY
DR.: T. RUSSELL
CKD.: J. J. MINSTER, P.E.
JOB NO.: 09202
3.2

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