

MFR
IUSP
Underdrain
Issues
08.04.08

MELODY AT FOX RUN UNDER DRAIN SYNOPSIS: (rough draft 08.04.08)

January 1999 – Document: Fox Run Final Drainage Report for Melody Homes prepared by Nolte and Associates, Inc.

- Site Run Off to be captured in an on-site detention pond located in the west portion of the site along east side of Weld County Road 11 ("WCR11").
- Detention pond will release maximum capacity of existing 18" CMP underneath WCR 11. Due to capacity of 18" CMP, detention pond will have a release rate less than the historical flows from the site.
- All proposed storm sewer inlets, mains, and curbs, gutters have been analyzed to verify adequate capacity.

January 13, 2000 – Document: Under Drain Testing Observations by Terracon & Maintenance Plan for the Subsurface Groundwater Collection

- Dye testing to confirm under drain lines carried water from the high points of the line to the outfall.
- Indicated under drain functioning properly.
- Maintenance of the subsurface groundwater collection system (date specific maintenance responsibilities)

January 14, 2000 – Document: Melody Homes Turn Over of Under Drain

- Turnover to HOA with under drain system plans, cleanout locations.
- Last Inspection by certified engineering company.
- Maintenance Schedules

January 14, 2000 – Document: Melody Homes Turnover of Common Areas

- Turnover to HOA of common element.

September 10, 2003 – Document: Hydro Physics Pipe Inspection Report

- Pipe filled with water – break in St. 8' to 13' deep

September 18, 2003 – Work Order: MFR001 to Rocky Mountain Sewer Jet ("RMSJ")

- Check entire under drain system – known break at 5324 Coyote Drive.

October 29, 2003 – Document: Melody Homes Letter – Outfall Drain

- Under drain was cut or damaged at various point along the sewer outfall after installation of the under drain system. Recommend following maintenance schedule.

July 19, 2005 – Document: DR Horton Letter – Under Drain Cleaning Invoice & Remediation

- Darrell Damschen letter date 6/10/05 to DR Horton concerning water infiltration below structural wood floors at 5324 Coyote Drive & 5322 Coyote Drive.
- Holley's Plumbing Invoice dated 7/12/05 for \$6,345.09 to jet lines.
- RMSJ letter dated 7/25/05 re: Invoice dated 6/8/05 for \$525.00 for sewer-jet / locator and found problem at middle of Coyote Drive.
- DR Horton letter dated 7/27/05 to Darrell Damschen (Lawyer) stating that Holley's Plumbing jetted the entire system and inspected the outfall on 7/27/05 at 5324 Coyote Drive and found evidence of dirt blockage due to excessive water intrusion into the system and water jetted the outfall system to assure proper operation.
- Estimates for remediation from Northstar Restoration dated 7/27/05 for \$4,058.93 at 5324 Coyote Drive.

July 20, 2005 – Email: Bill to BOD, MSI Under Drain Cleanout

- DR Horton ordered a cleanout of the under drain system \$6,345.00.
- Questions on under drain.

August 3, 2005 – Document: Letter to Melody Homes File #9368.003 Claim for Construction Defect

- Letter to Melody Homes (various parties) pertaining to defective construction of the under drain system in Melody homes at Fox Run. Verified turnover on 10/29/03 and have not received copies of the plans. Alleged sinking of roads due to defective under drain system and system may be cracking and breaking and is need of extensive reconstruction. Requesting \$6,345.00 based on Holley's Plumbing estimate.

August 9, 2005 – Fax: Documents from DR Horton Letter to Orton Hindman – Laura Sanchez.

- Documents described above in July 19, 2005 from DR Horton.

September 6, 2005 – Document: Letter from DR Horton Claim for Construction Defect

- Map & photos of clean out location at WCR11 & WCR20.
- Under drain system functioning property.
- Currently in process of remediation of the 2 home affected by the blockage on or about 6/10/05.
- All cost associated with cleaning/repairs will be incurred by DR Horton.

September 27, 2005 – Estimate: RMSJ

- Annual cleaning – sewer jet system to clean for \$945.00 (7 hours @ \$135.00/per hour).
- Camera image no included.

November 1, 2005 – Invoice: RMSJ

- Camera / Sewer Jett Coyote Drive to Fox Run both upstream and downstream. 90 degree bend at Coyote Drive to Fox Run under drain proves difficult to pass but functioning properly.

March 20, 2006 – Email: Russell Waring to Norm MacDonald, Subject Fox Run Under Drains

- Spot checked out under drain system per underground plans prepared for Filings 1 and 2 by Nolte Engineering in April 1999 and November 1999. Generally seem to follow plans.
- Filing 1 – under drain lying to side of sanitary sewer main and probably 1' lower in grade. Cleanout are generally found within the sanitary sewer manholes though not in every manhole. In area beyond sanitary system, separate manholes for under drain.
- Filing 2 – new regulation prohibit inclusion of under drain within sanitary sewer manholes. Laid in same trench as sanitary sewer or where departed from the sanitary system to outfalls or connections.
- Appears that several under drain cleanout lids have been paved over but located with magnetic locator and painted one cleanout.
- Filing 2 system has an outfall at the northeast corner of subdivision.

May 3, 2006 – Document : Letter from RMSJ Under Drain Issues – Coyote Drive: Reference letter dated October 10, 2005

- Unable to pass through the under drain system running from Coyote Drive to the intersection with Fox Run. This area was identified on 7/25/05 and has not been resolved. Plans indicate under drain connects to manhole at that intersection but do not believe accurate. Plans indicate northwest section of Fox Run also comes to the manhole and does not – it runs directly to the holding pond. Until proven that the under drain serving Coyote Drive has a proper connection at that intersection, addition work would be fruitless.
- Can not pass from cleanout #4 to cleanout #3 indicated on map – possible damage or roots 4' short of cleanout #3. Approximately 750' has no access between clean out #3 and cleanout #2. Cleanout #2 holding water – however ran 500' from cleanout #3 (with difficulty) and was unable to relieve stoppage.
- While jetting from the marked clean outs, no water was seen leaving the outlet at the irrigation canal although water could be heard running through the cleanouts. Water may be escaping the system prior to the daylight.
- Recommend more work locating and verifying the Coyote Drive intersection and Fox Run before additional jetting is done.

November 15, 2006 – Email String: Richard Leffler to Jay Titler w/cc: Sue, Myles, Allen & Derek: Re Under Drains

- Town does not consider the drain line under the sanitary sewer as being part of any “public system” and no other subdivision ties into the line.

April 27, 2007 – Email: Bill to BOD & Sue – Meeting With Town

- Recap of meeting with Derek Todd, Dick Leffler and Jordan Eichen(?). Possible solutions include connect to the storm sewer or pump to move water into retention pond or storm sewer. Get an estimate costs for solution that moves the water into the storm sewer, see if DHH would pay, DHH dedication of Tracts B, C & E.

December 7, 2007 – Email String: Jay to Sue & BOD – Under Drain Map

- Set meeting with Melody to discuss under drain section from WCR11 to creek – temporary measure and clean outs that can not be found.

May 29, 2008 – Document: Borne Engineering Site Observation Report

- Could not test due to pump problems.

June 9, 2008 – Document: Borne Engineering Site Observation Report

- Tested system – two problems – the offsite under drain system is not working properly and system is being inundated with an outside water source.

June 24, 2008 – Document: Borne Engineering Documenting Site Investigations.

- 5322 & 5324 Coyote Drive are in the lowest elevation of all the homes in the vicinity.
- Perimeter under drain system collects groundwater in a trap in crawl spaces and into the under drain system under the pavement of Coyote Drive. Flows north to a 90 degree bend to a manhole at Fox Run Blvd.
- Pipe conveys water to detention ponds at an elevation of 4930.57. The outlet pipe is 4926.28 a rise of 4.3 feet to discharge into the detention pond. Groundwater is designed to flow from the manhole in existing under drain system along WCR 11 into an irrigation ditch approximately ½ mile downstream. All observations indicate that this offsite under drain system is not functioning properly.
- Upstream conditions indicated outside water source inundating the sanitary sewer system about the under drain which could be inundating the under drain system.
- It is not feasible to pump the water into the detention pond without install a fairly large pump station with a duplex pump system. Recommend to repair the downstream under drain system off site.

July 2, 2008 – Document: Borne Engineering Probable Construction Costs – Pump System

- \$33,935.00 to install pump and associated costs.

MELODY
HOMESA D. R. HORTON company
America's Builder

October 29, 2003

Fox Run Board of Directors
c/o Management Specialists, Inc.
390 Interlocken Crescent, Suite 500
Broomfield, CO 80021

RE: Outfall Underdrain

Dear Members of the Board:

Please be advised that Melody Homes has done extensive investigation and repair work to solve a problem of water backing up in the outfall underdrain system from Fox Run to the outlet 1/2 mile west of WCR 11 and WCR 20. What we found was the underdrain was cut or damaged at various points along the sanitary sewer outfall after installation of the underdrain system. This damage occurred after Melody completed its work in the area. Melody will not charge the Association for any cost associated with these repairs. However, any future repairs will be at the Association's volition and expense.

We recommend that the Association check the underdrain manhole on the west side of the intersection of Fox Run Boulevard and Coyote Drive every three to four months to make sure the underdrain system is functioning normally. It should be running smoothly through the flow line in the bottom of the manhole. We also recommend that the Association follow the recommendations given to them from our geotechnical company for maintenance.

Melody further encourages that the St. Vrain Sanitation District to be cautious when working around the outfall line. We would recommend that if construction or adjustments to the outfall sewer lines are made that a representative of the Sewer District inform the contractor of the necessity of keeping the underdrain system functional.

Thank you for the opportunity to be of service.

Sincerely,



Roger G. Hollard
Vice President Land Development

cc: St. Vrain Sanitation District
Dick Leffler, Town of Frederick
Brian Matte, Melody Homes Customer Service Manager
Toby Terhune, Melody Homes Executive Vice President

MFR.
MAOB
Underdrain
Maintenance
01.04.2000

January 4, 2000

Terracon

1242 Bramwood PL
Longmont, Colorado 80501
(303) 776-3921 Fax: (303) 776-4041

Melody Homes, Inc.
11031 Sheridan Blvd.
Westminster, CO 80020

Attention: Mr. Tim Kratz

Subject: Maintenance Plan for the Subsurface Groundwater Collection System
Fox Run Subdivision
Frederick, Colorado
Terracon Project No: 22991030

Gentlemen:

In accordance with your request, we are hereby providing a recommended plan for maintenance of the existing subsurface groundwater collection (underdrain) system at the subject site.

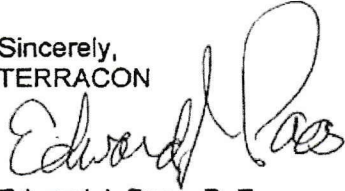
1. Melody Homes, Inc. is responsible for the maintenance of the subsurface groundwater collection system until transfer to the homeowners association. At the time of transfer to the homeowners association, ownership and maintenance shall become the sole responsibility of the homeowners association. Maintenance of the system shall be in accordance with Items 2 through 7.
2. All daylight points shall be visually inspected for blockage, damage, or significantly reduced pipe capacity at least once every 3 months and/or after severe storms or flooding.
3. The accessible portion(s) of the main collection lines shall be inspected at least once every five (5) years with a camera system or dye tested to evaluate the general functionality of the system. Details to be observed during inspection include evidence of pipe damage, obstruction, clogging, and positive drainage.
4. If camera inspection or other observation indicate the lines are clogged or otherwise obstructed, the obstructed lines shall be jet cleaned.
5. If an inspection shows a reduction in pipe capacity, pipe failure or a lack of positive drainage, then maintenance and repairs shall be completed in accordance with the approved subsurface groundwater collection system plans and standards.
6. Before making repairs to the subsurface groundwater collection system, all applicable permits shall be obtained from the City of Frederick and the applicable water and sanitation district.

Maintenance Plan for the Subsurface Groundwater Collection System
Fox Run Subdivision
Frederick, Colorado
Terracon Project No: 22991030

7. The owner shall keep the primary system in good condition and shall replace or repair at this expense any portion of the system, which in the opinion of the City or the water and sanitation district, have become damaged and no longer function as originally designed.

If you have any questions regarding this letter or if we can be of further service, please call.

Sincerely,
TERRACON



Edward J. Paas, P. E.
Principal



/di

