

CASTLE ROCK WATER

**FOLLOW-UP REGARDING
JUNE 9, 2024
STORM ASSESSMENT
AND STORMWATER MANAGEMENT
REQUIREMENTS**

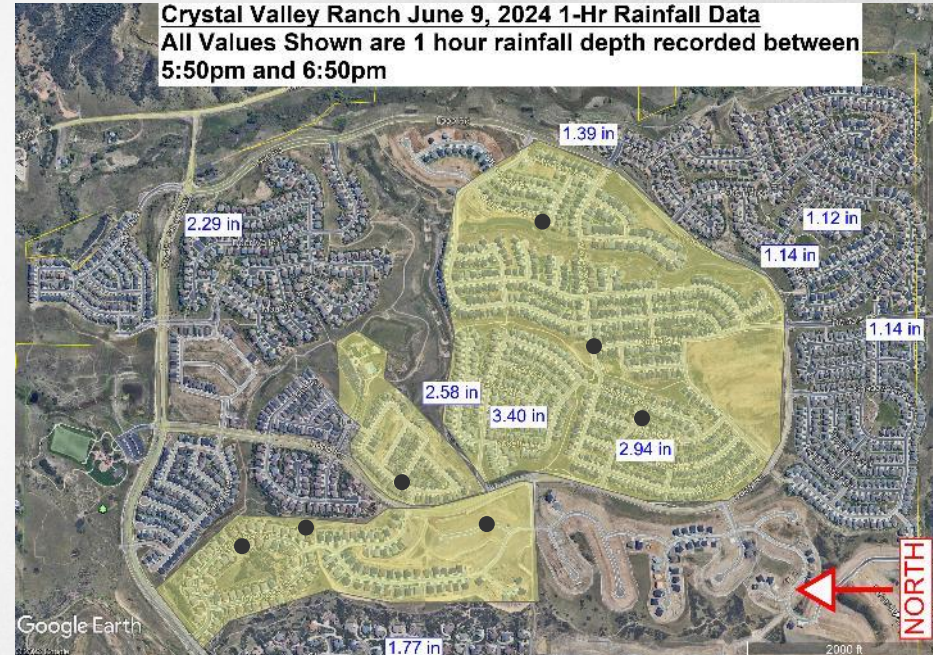
JULY 16, 2024



JUNE 9 STORM

RECAP ON STATUS OF CUSTOMER ISSUES

- Customer Service Calls related to the storm
 - 43 requests received
 - 26 addressed
 - 10 in progress
 - 7 issues - Jacobs Engineering investigating
- Expected timeframe for follow up



JUNE 9 STORM

THIRD PARTY INFRASTRUCTURE ANALYSIS

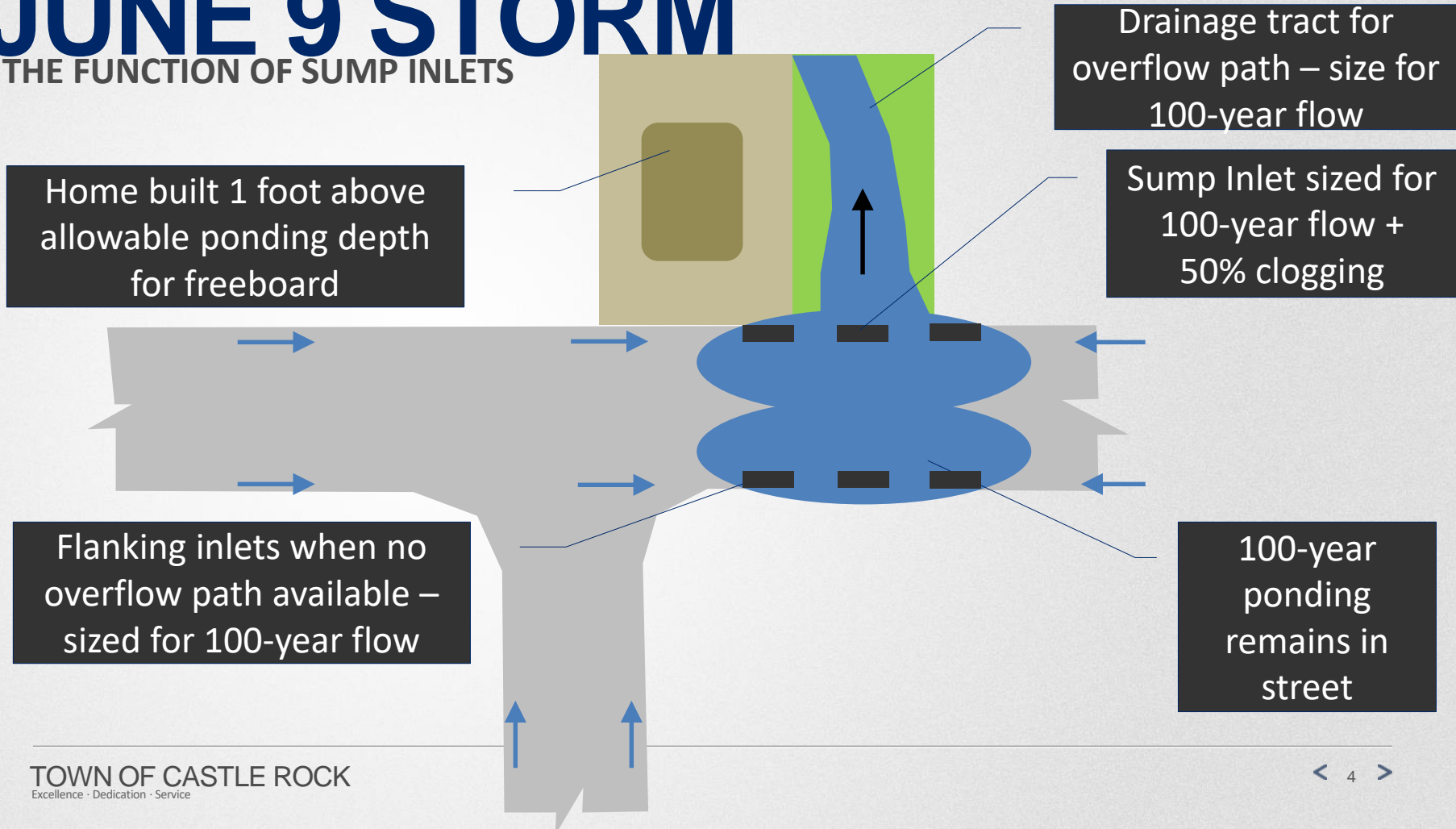
- Jacobs Engineering retained to analyze seven areas of interest.
- Magnitude of June 9 storm impact on infrastructure:
 - 200-1,000 year event in some areas of concern,
 - exceeded major storm criteria in some locations, and
 - hail impacted infrastructure performance.
- Visually most appear to meet approved development plans
- Plans and infrastructure in some areas have not fully complied
 - flawed sump inlet design,
 - incorrect flanking inlet design,
 - inadequate freeboard,
 - improper drainage easement issues, and
 - lack of emergency overflow paths or drainage tracts.
- Baseline hydrology design assumptions may be inaccurate and require further evaluation.
- Further evaluation and redesign is needed in some areas.



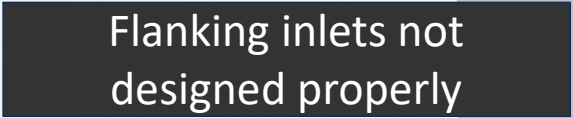
CRW staff collecting data for third party analysis

JUNE 9 STORM

THE FUNCTION OF SUMP INLETS



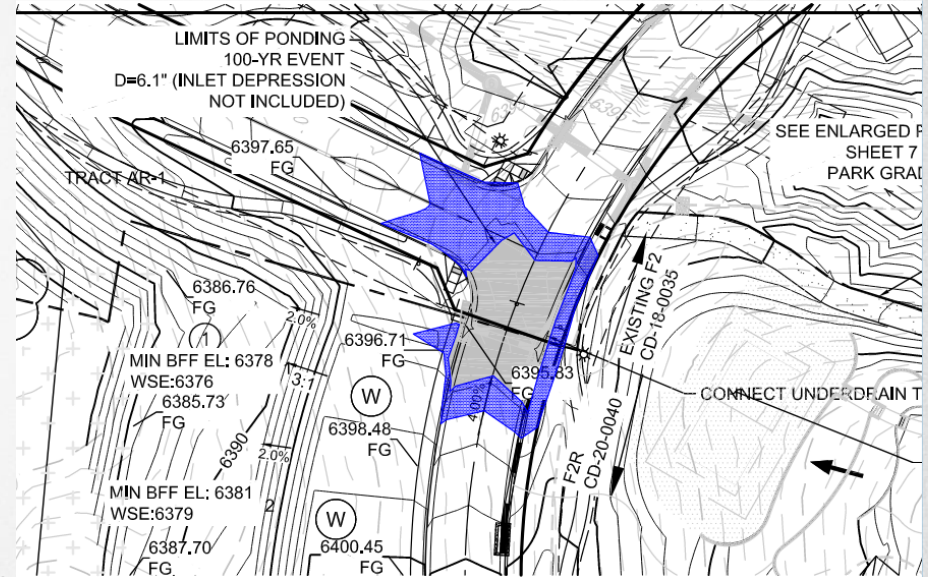
POTENTIAL ISSUES WITH SUMP INLETS



JUNE 9 STORM

DEVELOPMENT REVIEW SUBMITTAL REQUIREMENTS MOVING FORWARD

- Require emergency overflow path designs and drawings for development extended entirely through neighborhood.
- Compel submittal of associated hydraulic calculations at all sump inlets where emergency overflow paths are needed.
- Demand proof that adequate freeboard per criteria is provided for adjacent residential structures.
- Force submittals on properly designed flanking inlets where there is no available drainage tract for a designated emergency overflow path as a last resort.



Quantified ponding depth at sump inlets in Lanterns

JUNE 9 STORM

POTENTIAL CHANGES TO CRITERIA GOING FORWARD

- Consider a comprehensive drainage criteria review and update to ensure conformance with latest trends in rainfall depths and other engineering factors.
- Allow flanking inlets by variance only.
- Require increase to piping infrastructure when flanking inlets are approved by variance.
- Add language to drainage certifications regarding alteration of approved drainage patterns.



Flanking Inlets

JUNE 9 STORM

TRENDS IN STORMWATER MANAGEMENT REGULATIONS

- Mile High Flood District Revisions
 - Released in March 2024, incorporated by CRW
 - Updates to runoff impervious factors for residential development
 - Low density (0-3 du/acre): Increase impermeable area from 12% to 35%
 - Medium density (3-5 du/acre): Increase impermeable area from 30% to 55%
 - High density (5-20 du/acre): Increase impermeable area from 45% to 65%
- ColoradoScape considerations
 - Study started prior to the new ordinance
 - Landscape areas increase from 2% to 20% impermeable to account for ColoradoScapes
 - Captured by updates to Mile High Flood District



Tract home development in Lanterns



QUESTIONS