SUPPLEMENTARY REPORT
SITE CONSTRAINTS

SOUTH-WEST NARRANDERA
SEWER SCOPING STUDY

September 2020

Building and Environmental Services Today
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Hard copy reference	Soft copy reference	Attachment Title
1	A	Key Features & Site Constraints Map

Version Control Table:

Version	Date	Comments	Prepared	Reviewed	Authorised
1	30/08/2020	Draft for preliminary comment	Neil Smith	Noel Crichton	Neil Smith
2	01/09/2020	Final draft ground water bore inclusion	Neil Smith	Noel Crichton	Neil Smith

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1. Executive Summary

Building & Environmental Services Today (BEST) was engaged by Narrandera Shire Council to explore the desirability and feasibility of extending sewerage to South West Narrandera.

Phase One of the project "Survey & Information Collection" was completed in late May 2020. The reader is referred to this report for background information and results.

This report summarises outcomes from Phase Two of the project titled "Options Study Report".

In broad terms this report examines the site constraints that limit the ability of certain parts of the study area from accepting on site sewage disposal. In other words, land that septic tanks etc should not permitted.

Interestingly, the further examinations carried out in this phase under pin the recommendations made in the Phase One report, consequently the recommendations below are almost identical.

This report recommends that:

1. Reticulated sewer be provided to service the study area, excluding the Dixonville locality and flood prone areas.
2. Dixonville locality:
    a. Remain unsewered;
    b. Be zoned for large lot residential development;
    c. Minimum lot size of approximately 4,000 square metres.
3. Groundwater bore locations be determined and depending on circumstances, water quality be examined.
4. Policy be developed to clarify requirements for OSSMS in the Narrandera local government area (LGA).

2. Acknowledgements

The assistance of Noel Crichton, Project Engineer, is gratefully acknowledged.

As with Phase One, Noel was happy to meet on a number of occasions, after hours, at his home to discuss aspects of the work.

3. Limitations

This report is based on observations and information collected as outlined in the Phase One report. It is also based on mapping of various environmental constraints as shown in Narrandera Local Environmental Plan 2013 (the LEP).

It should be pointed out that the scale and accuracy of the LEP on line resources is reasonably poor and therefore the exact position of any lines on the mapping provided as part of this report should be read as approximate.

4. Relevant Experience & Technical Skills

This report was produced by Neil Smith. The reader is referred to the Phase One report for further information on relevant experience and technical skills.

Background and Methodology

Discussions with Project Engineer

Discussions with Noel Crichton occurred over the course of developing this report. These discussions were via telephone, email and face to face.

Mapping

A pdf map of the study area was provided by Council. This map included lot, section and deposited plan numbers for each allotment.

From the above and as part of the Phase One report a “Key Features Map” (Phase One - Attachment 2 and Attachment A) was produced.

To this map were added highlighted sections showing the following constraints:

- Groundwater vulnerability
- IN2 - Light Industrial Zone
- Future stormwater retention basin locality
- Expanded brick pit area
- High density, small lot

The map provides an “at a glance” view of the study area clearly giving the reader an overall view of the land which would be unlikely to be suitable for future development without sewerage thus, conversely, indicating the land remaining which should be sewered.

5. Results & Discussion

Narrandera Local Environmental Plan 2013

An examination of Council's LEP with respect to the following potential constraints was carried out:

- Land Zoning
- Lot Size
- Land Reservation Acquisition
- Heritage
- Terrestrial Biodiversity & Salinity
- Wetlands, Groundwater Vulnerability & Watercourses
- Flood Planning
- Defence Communications Facility Buffer

The outcomes of these examinations are elaborated on in the sections below.

Land Zoning

Land located in the north east sector of the study area bounded by River Street, the disused rail line and approximately by Twynam Street is zoned as Light Industrial. The "Permitted with consent" uses, copied from Council's LEP, are as follows:

"Depots; Funeral homes; Garden centres; Hardware and building supplies; Heliports; Industrial training facilities; Kiosks; Landscaping material supplies; Light industries; Neighbourhood shops; Oyster aquaculture; Places of public worship; Rural supplies; Take away food and drink premises; Tank-based aquaculture; Timber yards; Vehicle sales or hire premises; Warehouse or distribution centres; Any other development not specified in item 2 or 4."

The potential for greases, oils, fats, hydrocarbons and other undesirable contaminants to be discharged via OSSMS to groundwater from such uses presents a risk that is considered undesirable. As such it is strongly recommended that the Light Industrial area be provided with reticulated sewerage.

Lot Size

There is no minimum lot size specified in the LEP for any of the land in the study area. This was highlighted in the Phase One report. There is the potential for land to be subdivided with little regard to available space for on site sewage disposal. Should such subdivision occur, the volume of effluent being discharged to ground would increase, the proximity of residents to effluent discharge areas would reduce resulting in an increase in risk to the environment and public health.

Land Reservation Acquisition

Nil effect.

Heritage

Nil effect.

Terrestrial Biodiversity & Salinity

There are no saline areas identified in the LEP mapping. With regard to biodiversity, the LEP mapping indicates that biodiverse land aligns with the flood prone land adjoining the Murrumbidgee River. It is the writer's opinion that there would be little effect on biodiversity and that OSSMS and dwellings would generally be excluded from flood prone land in any case.

Wetlands, Groundwater Vulnerability & Watercourses

The groundwater vulnerability areas align closely with land south of the canal and effectively rule out permitting OSSMS in the Sandhills and South West Narrandera areas.

Relevant excerpts from the LEP are pasted below:

"***Groundwater vulnerability***

(1) The objectives of this clause are as follows—
(a) to maintain the hydrological functions of key groundwater systems,
(b) to protect vulnerable groundwater resources from depletion and contamination as a result of development.
(2) This clause applies to land identified as "Groundwater Vulnerable" on the Groundwater Vulnerability Map.
(3) Before determining a development application for development on land to which this clause applies, the consent authority must consider the following—
(a) the likelihood of groundwater contamination from the development (including from any on-site storage or disposal of solid or liquid waste and chemicals),
(b) any adverse impacts the development may have on groundwater dependent ecosystems,
(c) the cumulative impact the development may have on groundwater (including impacts on nearby groundwater extraction for a potable water supply or stock water supply),
(d) any appropriate measures proposed to avoid, minimise or mitigate the impacts of the development.
(4) Development consent must not be granted to development on land to which this clause applies unless the consent authority is satisfied that—
(a) the development is designed, sited and will be managed to avoid any significant adverse environmental impact, or
(b) if that impact cannot be reasonably avoided—the development is designed, sited and will be managed to minimise that impact, or
(c) if that impact cannot be minimised—the development will be managed to mitigate that impact"

Flood Planning

The flood planning areas align with the 1 in 100 flood level and effectively exclude fringe areas around the edges of Sandhills and South West Narrandera from further development. It is not expected that it would be necessary to provide sewerage to these fringe locations since development would generally be discouraged in any case.

Defence Communications Facility Buffer

Nil effect.

Additional Constraint Considerations

Development Density

Of particular concern are the higher density areas where small allotments of approximately 1,000 square metres exist.

The southern portion of the North West Narrandera locality around Audley Street and Twynam Street is especially concerning due to the small lot sizes and consequently close proximity of human activity/neighbours to effluent disposal areas.

These small lot size areas should be provided with sewerage to reduce risk to public health and the environment.

Domestic Ground Water Bores

There are registered ground water bores located on land at Dixonville, Sandhills and South West Narrandera. The location of these is as listed below. See also map of locations on the following page and also at Attachment A.

Dixonville

- Lot 4, DP 6829
- Lot1, DP 204062
- Lot 7, DP 6829
- Lot 2, DP 1232220

Sandhills

- Lot12, DP 129171

South West Narrandera

- Lot 1, Section 28, DP 758757
- Lot 6, Section 29, DP 758757

There may be other unregistered bores in the study area too. There is a significant risk to public health where bore water is used in the home (whether for drinking or bathing) and where these bores are located close to sewage disposal areas, especially in sandy soils such as have been shown to exist throughout the study area.

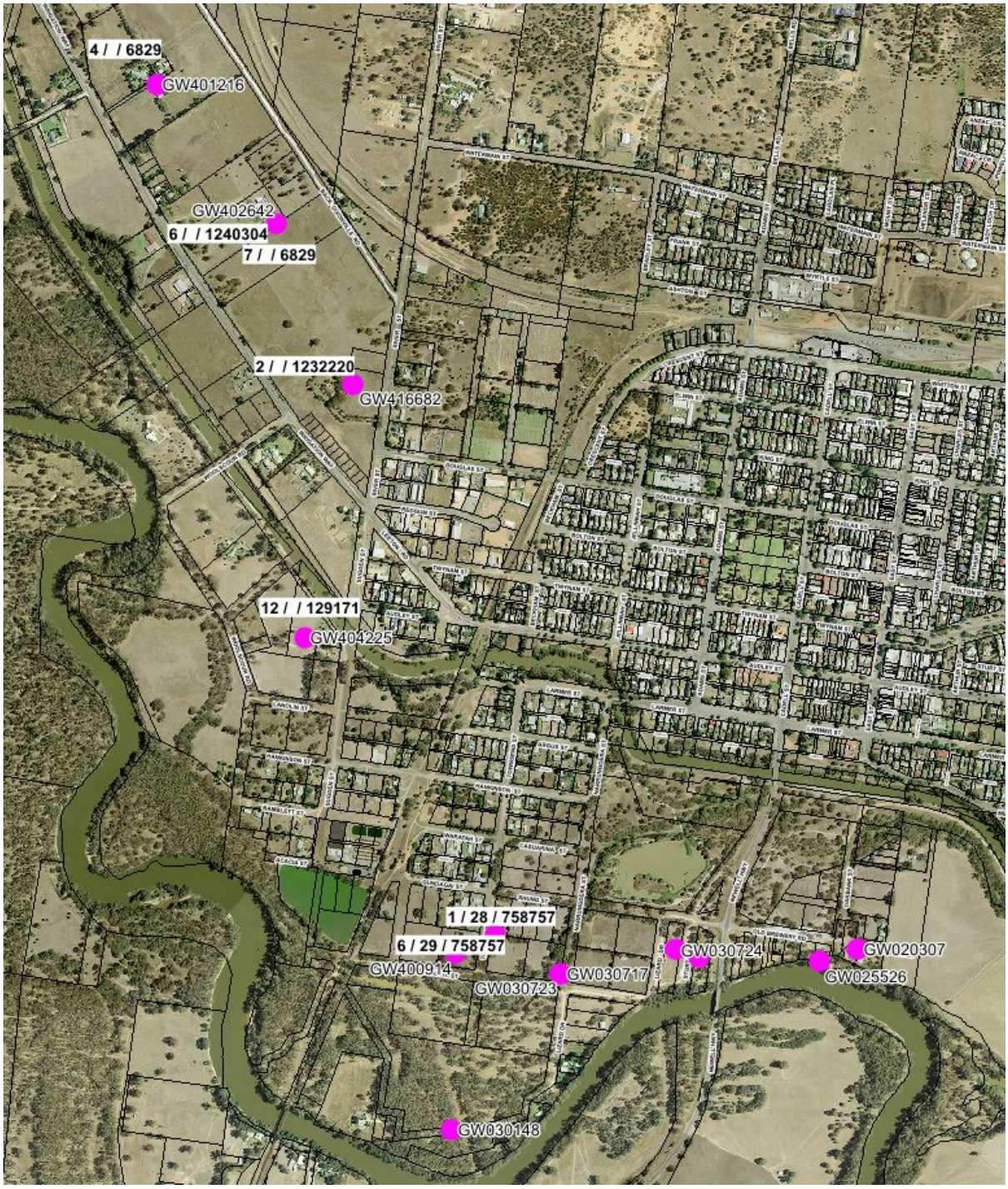
The Phase One report has this to say regarding ground water bores.

"The reason that ground water bore information is important is because sewage disposal areas must not be located near them. Australian Standard 1547:2012 – On-site domestic wastewater management specifies buffers distances between effluent disposal areas and ground water bores of between 15m and 50m depending on the soil type. In sandy situations such as those that exist in the study area, the larger buffer zones are desirable."

It is strongly recommended that specific individual examination occur with respect to:

1. The location of known groundwater bores in the study area;

2. Whether or not the ground water from the above bores is being used in the home;
3. If used in the home, the proximity of the above bores to on site sewage disposal areas; and
4. If within 50 metres of an effluent disposal area, bacteriological water testing be carried out to determine whether contamination of the groundwater entering the home may be occurring.



6. Summary

This summary and the following recommendations closely mirror those set out in the Phase One report.

Provide Reticulated Sewage to North West, South West and Sandhills

In conclusion, and in consideration of both the public health risks, environmental impacts and constraints underpinned by Council's LEP, it is felt that reticulated sewerage services be extended to the North West, South West and Sandhills localities.

Dixonville Earmarked for On Site Disposal with Extra Controls

If Dixonville is to remain unsewered, there should be some controls put in place to regulate further development of the locality.

Presently Council's LEP does not specify any minimum lot size and the land is zoned RU5 Village. As a consequence, every application for development must be considered on merit running the risk that undersized allotments and inappropriate uses may result.

Appropriate zonings and policies give clear guidelines and boundaries for not only developers but also for staff.

It has been mentioned previously that the estimates in this report for lot yield where on site effluent disposal is permitted have been based on 4,000 square metres. This figure was provided by council staff and is supported by the writer. Such a limit on lot size in the Dixonville locality in combination with a zoning more reflective of the larger lot character of the area is strongly recommended.

In addition, clearer policy should be developed regarding council's requirements for the installation of OSSMS. Such policy should be consistent across the local government area and not simply focus on Dixonville. The policy would specify, amongst other things, the minimum requirements for soil testing and effluent disposal area design. The minimum size for septic tanks and AWTSs etc. Such a policy would not need to be highly prescriptive but at least set the boundaries around minimum standards of testing and documentation required with new applications.

7. Recommendations

1. That reticulated sewerage services be extended to the North West, South West and Sandhills localities.
2. That the Dixonville locality be identified for large lot development and on-site sewage disposal.
3. That appropriate actions be taken to control development of Dixonville. including:
    a. Re-zoning;
    b. Setting a minimum lot size of approximately 4,000 square metres; and
    c. Developing a policy which sets standards for on site sewage management systems in Narrandera local government area including minimum buffer distances from groundwater bores.
4. That, with respect to existing ground water bores, the following examinations occur:
    a. As far as practicable, the location of groundwater bores in the study area be established;
    b. Determine whether or not the ground water from the above bores is being used in the home;
    c. If used in the home, the proximity of the above bores to effluent disposal areas; and
    d. If within 50 metres of an effluent disposal area, bacteriological water testing be carried out to determine whether contamination of the groundwater entering the home may be occurring.

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Attachment 1 – Key Features and Site Constraints Map

Electronic (soft copy) Attachments **(see attached USB stick)**

A. – Key Features & Site Constraints Map